

ADDITIONAL NOTES ON THE ERIOCAULACEAE. LIX

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ERIOCAULON QUINQUANGULARE L.

Additional & emended synonymy: Gramen indicum capitulis tomentos P. Herm., Mus. Zeyl., ed. 1, 17. 1717. Kokmotha P. Herm., Mus. Zeyl., ed. 2, 57. 1726. Eriocolon quinquangulare L. apud Lam., Encycl. Méth. Bot. 3: 275, in obs. 1789. Eriocaulon quinquangulare L. ex Prain, Bengal Pl., imp. 1, 1127. 1903.

Additional bibliography: P. Herm., Mus. Zeyl., ed. 2, 57. 1726; Bojer, Hort. Maurit. 361. 1837; J. Grah., Cat. Pl. Bomb. 230. 1839; Prain, Bengal Pl., imp. 1, 1127. 1903; Cooke, Fl. Presid. Bombay, ed. 1, 2: 842 & 849 (1908) and ed. 2, imp. 1, 3: 354 & 361—362. 1958; Prain, Bengal Pl., imp. 2, 2: 848, 849, & 985. 1963; Punt, Reg. Veget. 36: 9. 1964; Cooke, Fl. Presid. Bombay, ed. 2, imp. 2, 3: 354 & 361—362. 1967; Malhotra & Moorthy, Bull. Bot. Surv. India 13: 314. 1971; Moldenke, Phytologia 29: 200, 205, 220—222, 224, 231, & 237 (1974) and 31: 397, 398, & 400. 1975; Anon., Taxon 24: 173. 1975; Moldenke, Phytologia 32: 496. 1976.

Malhotra & Moorthy (1971) cite for this species their nos. 107197 & 122668. Cooke (1908) cites only Jacquemont 742 and Stocks s.n. from Bombay and gives the overall distribution of the species as "Throughout India; Ceylon". Kuntze (1891) records it from Annam. Townsend describes the plant as "very abundant, heads pure white" and found it growing in damp sand in the troughs of undulations in an undulating area of white sand. Cooray also refers to the flowers as white and the plant as common; his nos. 70020104R, 70020245R, & 70032207R are vouchers for ecologic observations in Sri Lanka.

The Santapau collections cited below were previously cited by me as E. infirmum Steud., but they seem better placed as E. quinquangulare. Santapau encountered the species "in large patches in ricefields", while Jayasuriya refers to it as "abundant in wet places on savannas" at low altitudes and found it flowering in May.

The "E. quinquangulare Bojer" listed in the "Index Kewensis" and elsewhere and referred to Bojer, Hort. Maurit. 361 (1837) is actually not proposed there as a new species. The reference reads: "1. QUINQUANGULARE. L. Spreng. Syst. p. 775. Pat. Inde orientale, ile Maurice. Croit dans les endroits découverts et humides autour du Grand-Bassin. Annuelle. Fl. Octobre, Décembre." The only other species which he lists is "2. REPENS. Lamk. Spreng. Syst. ibid. Pat. Ile Maurice. Croit et fleurit comme l'espèce précédente." Eriocaulon repens Lam., however, is native to Hispaniola (in the West Indies), not Mauritius, so both identi-

fications are apparently incorrect. To which of the five species known from Mauritius these two references apply can only be determined by examination of Bojer's actual specimens probably preserved in the Paris herbarium.

Additional citations: INDIA: Gujarat: Santapau 9611 (N, Xa), 9630 (N, Xa). Maharashtra: Vartak RD.17 (Ac). Mysore: Bogner 521 (Mu). SRI LANKA: Cooray 70020104R (W--2657056), 70020245R (W--2657055), 70032207R (W--2657054); Jayasuriya 1948 (Ld); Moldenke, Moldenke, & Jayasuriya 28217 (W--2765405), 28225 (W--2765404), 28322 (W--2765410); Moldenke, Moldenke, & Sumithraarachchi 28199 (W--2765406); Moldenke, Moldenke, Sumithraarachchi, & Waas 28319 (W--2765412); C. C. Townsend 73/261 (W--2765874).

ERIOCAULON QUINQUANGULARE var. ELATIUS Moldenke

Additional bibliography: Moldenke, *Phytologia* 29: 222. 1974.

Jayasuriya found this variety "abundant in wet sandy grassy spots" at low altitudes, the white heads in flower in May.

Additional citations: SRI LANKA: Jayasuriya 2005 (Ld).

ERIOCAULON RECURVIFOLIUM C. H. Wright

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 47 (2): 12. 1926; Moldenke, *Phytologia* 24: 496. 1972.

ERIOCAULON RITCHIEANUM Ruhl.

Additional synonymy: Eriocaulon ritcheanum Ruhl. apud Saxena, *Bull. Bot. Surv. India* 12: 38 & 62. 1970.

Additional bibliography: Cooke, *Fl. Presid. Bombay*, ed. 1, 2: 850 (1908), ed. 2, imp. 1, 3: 362--363 (1958), and ed. 2, imp. 2, 3: 362--363. 1967; Saxena, *Bull. Bot. Surv. India* 12: 38 & 62. 1970; Kulkarni & Desai, *Journ. Bombay Nat. Hist. Soc.* 71: 82--84. 1974; Moldenke, *Phytologia* 29: 222--223 (1974) and 31: 397. 1975; Shah, *Biol. Abstr.* 59: 6329. 1975; Moldenke, *Phytologia* 32: 498. 1976.

Cooke (1908) cites only Ritchie 1248 from Bombay -- Belgaum, S. M. Country -- in the *Hervier Boissier* at Geneva and comments that "I have seen no specimens; there are none in *Herb. Kew.*" Saxena (1970) tells us that this species comprises part of "poor aquatic vegetation", found only in ditches or where stream flow is slow.

Material of E. ritcheanum has been misidentified and distributed in some herbaria as "E. longicuspis Hook. f."

Additional citations: INDIA: Maharashtra: Vartak RD.13 (Ac), RD.15 (Ac), RD.18 (Z).

ERIOCAULON ROBUSTO-BROWNIANUM Ruhl.

Additional bibliography: Cooke, *Fl. Presid. Bombay*, ed. 1, 2: 850--851 (1908), ed. 2, imp. 1, 3: 363 (1958), and ed. 2, imp. 2, 3: 363. 1967; Moldenke, *Phytologia* 29: 223. 1974.

Cooke (1908) says for this species: "Kanara: Dharwar and Bel-lary district (Saw. according to Ruhland, but probably a misprint

for Law). I have seen no specimens; there are none in Herb. Kew."  
 Additional citations: INDIA: Maharashtra: Vartak RD.20 (Ld).

ERIOCAULON ROUXIANUM Steud.

Additional bibliography: Cooke, Fl. Presid. Bombay, ed. 1, 2: 851 (1908), ed. 2, imp. 1, 3: 363 (1958), and ed. 2, imp. 2, 3: 363. 1967; Moldenke, Phytologia 25: 69. 1972.

Cooke (1908) comments that "Dalzell, who has collected and described many of the Bombay Eriocaulons, has seen neither this plant nor E. heterolepis. There are no specimens in Herb. Kew. Roux's specimens, collected in Bombay in 1832, are said to be in Delessert's Herbarium (Lasague, in Deless. Mus. Bot. (1845) p. 156)." That herbarium is in the Conservatoire et Jardin Botaniques in Geneva now.

ERIOCAULON SACCATUM Van Royen

Additional bibliography: Moldenke, Phytologia 25: 70. 1972; Hartley, Dunstone, Fitzgerald, Johns, & Lamberton, Lloydia 36: 235. 1973; Farnsworth, Pharmacog. Titles 9 (1): x. 1974.

Hartley and his associates (1973) found this plant growing in moist meadows in New Guinea and cite their no. 13235.

ERIOCAULON SCARIOSUM J. E. Sm.

Additional bibliography: Heslop-Harrison, Ind. Kew. Suppl. 15: 52. 1974; Moldenke, Phytologia 29: 223 (1974) and 31: 391. 1975.

Recent collectors describe this plant as an erect ephemeral herb, 15 cm. tall, with basal leaves and "stems" [-peduncles] 5 inches long, the inflorescences "papery-white". Nelson found it to be "common in mud in low-lying swamp in creek bed", while Latz says that it is "rare in sand on edge of seasonal swamps". Parker refers to it as growing in clumps in moist disturbed sand areas. It has been collected in flower and fruit in June and September.

Additional citations: AUSTRALIA: Northern Territory: D. J. Nelson 1172 [Herb. North. Terr. 11304] (Z); M. Parker 135 (Ld). AUSTRALIAN ISLANDS: Wessel: Latz 3312 [Herb. North. Terr. 36834] (Z).

ERIOCAULON SCHIEDEANUM Körn.

Additional bibliography: Moldenke, Phytologia 26: 36 (1973), 31: 378 (1975), and 32: 492. 1976.

Rzedowski & McVaugh describe this plant as having "cabezuelas negruzcas, los individuos creciendo aislados in zona pantanosa a los lados de un arroyo", at 2700 meters altitude, flowering and fruiting in October.

The Pringle 3855, distributed in many herbaria as E. schiede-anum, actually is E. bilobatum Morong, while Gentle 993 is E. fuliginosum C. Wright.

Additional citations: MEXICO: Aguascalientes: Rzedowski & McVaugh 824 (M1). Jalisco: Pringle 6146, in part (W--254714, W--937180).

ERIOCAULON SCHULTZII Benth.

Additional bibliography: Moldenke, *Phytologia* 25: 71. 1972.

Dunlop refers to this plant as an "annual in organic sludge" and found it growing in a rock-hole in sandstone conglomerate, flowering and fruiting in February.

Additional citations: AUSTRALIA: Northern Territory: C. Dunlop 3388 (Z).

ERIOCAULON SCLEROCEPHALUM Ruhl.

Additional bibliography: Moldenke, *Phytologia* 25: 71--72. 1972; León & Alain, *Fl. Cuba*, imp. 2, 1: 281 & 423. 1974; Moldenke, *Phytologia* 32: 504. 1976.

Recent collectors have encountered this plant on savannas, especially on white quartzite sand where water seeps through, and along moist sandy roadsides, flowering and fruiting (in addition to the months previously reported by me) in March and April.

Material has been misidentified and distributed in some herbaria as E. sigmoideum C. Wright. Killip 44059 is a mixture with E. ovoideum Britton & Small.

Additional citations: CUBA: Pinar del Río: Ekman 10822 (W-1302885--cotype). ISLA DE PINOS: Britton, Britton, & Wilson 44948 (W--793220); Ekman 11990 (W--1302886--cotype), 12106 (W-130288); Killip 43036 (W--2112028), 44059, in part (W--2176133), 45517 (W--2226329).

ERIOCAULON SEDGWICKII Fyson

Additional bibliography: Moldenke, *Phytologia* 29: 224. 1974.

Vartak encountered this plant on moist soil, flowering and fruiting in September.

Additional citations: INDIA: Maharashtra: Vartak RD.2 (Z), RD. 21 (Ld), RD.22 (Z).

ERIOCAULON SEEMANNII Moldenke

Additional bibliography: Moldenke, *Phytologia* 29: 224. 1974; Molina R., *Ceiba* 19: 24. 1975.

Molina R. (1975) records this species from Honduras.

ERIOCAULON SELLOWIANUM Kunth

Additional synonymy: Eriocaulon sellowianum Moldenke, *Phytologia* 29: 225, sphalm. 1974.

Additional bibliography: Moldenke, *Phytologia* 29: 224--225 & 314 (1974) and 31: 397. 1975.

Recent collectors have encountered this plant on wet campos and in "brejo, zona de campo", at altitudes of 1300--1500 meters, fruiting in May.

Additional citations: BRAZIL: Goiás: W. R. Anderson 6466 (N); Hatschbach 36848 (Ld); Hatschbach, Anderson, Barneby, & Gates 36317 (Ac); Irwin & Soderstrom 7643 (W--2759065).

ERIOCAULON SELLOWIANUM var. LONGIFOLIUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 29: 225. 1974.

Hatschbach encountered this plant in "campo, margem cerrado", flowering and fruiting in May.

Additional citations: BRAZIL: Goiás: Hatschbach 36829 (Ld).

ERIOCAULON SELLOWIANUM var. MINOR Moldenke

Synonymy: Eriocaulon sellowianum var. minor Moldenke, *Phytologia* 29: 225, sphalm. 1974.

Additional bibliography: Moldenke, *Phytologia* 29: 225 (1974) and 31: 397. 1975.

ERIOCAULON SELLOWIANUM var. PARANENSE (Moldenke) Moldenke & Smith

Additional bibliography: Moldenke, *Phytologia* 29: 224 & 225 (1974) and 31: 397. 1975.

Additional citations: BRAZIL: Paraná: Hatschbach 35636 (Ld).

ERIOCAULON SETACEUM L.

Additional synonymy: Tsjeru-cotsjiletti-pullo Rheede apud Lam., *Encycl. Méth. Bot.* 3: 275, in syn. 1789. Randiala malabarica, capillaceo folio Petiv. apud Lam., *Encycl. Méth. Bot.* 3: 275, in syn. 1789. Eriocaulon setaceum L. ex Moldenke, *Phytologia* 31: 397, in syn. 1975.

Additional bibliography: Lam., *Encycl. Méth. Bot.* 3: 275. 1789; J. Grah., *Cat. Pl. Bomb.* 230. 1839; Woodr., *Journ. Bomb. Nat.* 13: 429. 1901; Cooke, *Fl. Presid. Bombay*, ed. 1, 2: 841--843. 1908; Dunn & Tutchet, *Kew Bull. Misc. Inf. Addit. Ser.* 10: 291 & 292. 1912; Cooke, *Fl. Presid. Bombay*, ed. 2, imp. 1, 3: 353--355 (1958) and ed. 2, imp. 2, 3: 353--355. 1967; Lieth, *Phenol. & Season. Model.* 439. 1974; Moldenke, *Phytologia* 29: 284 (1974), 31: 397 (1975), 32: 465 & 470 (1975), and 32: 492. 1976.

Cooke (1908) cites Dalzell s.n., Stocks s.n., and Woodrow s.n. from Bombay and gives the overall distribution of the species as "India (Bengal, Khasia Hills, Birma, W. Peninsula); Ceylon, Cochinchina". He comments that "I have followed Ruhland....in making E. Capillus-naiadis, Hook. f., conspecific with E. setaceum, Linn. In the 'Flora of British India'....E. Capillus-naiadis, Hook. f., is made conspecific with E. setaceum of Koernicke, which is certainly that of Linnaeus. Ruhland restores E. intermedium, Koern., which is the E. setaceum of many authors, but not of Linnaeus."

Malaisse (1974) reports that in Zambezia E. setaceum flowers in May, while the very similar E. bifistulosum Van Heurck & Muell.-Arg. flowers in February and March. Taylor states that in western Australia he found E. setaceum "to 22 cm. tall, grey nodular flowers protruding above water line" in May, while Dunlop, in the northern part of the continent, refers to it as an aquatic, rooting in mud in 30 cm. of water at the edge of a freshwater lagoon, only the inflorescence being aerial, flowering in February.

Lamarck (1789) calls this plant, in French, "joncinelle sétacée" and describes it as follows: "La racine de cette plante

est longue, & garnie de fibres; elle pousse à son collet quantité de feuilles sétacées. entre lesquelles s'élèvent plusieurs tiges ou hampes menues, à six angles selon Linné, enveloppées chacune inférieurement par une gaine membraneuse. Chaque tige est terminée par une petite tête arrondie. Cette plante croît dans l'Inde, aux lieux aquatiques."

The Hu 10873, distributed as E. setaceum, seems, rather, to be E. fluviatile Trimen, while Wingfield 594 is E. bifistulosum Van Heurck & Muell.-Arg. and Hu 8906 is E. cristatum var. brevicalyx C. H. Wright.

Additional citations: INDIA: Maharashtra: Vartak RD.23 (Ld). AUSTRALIA: Northern Territory: C. Dunlop 3283 (Ld). Western Australia: G. C. Taylor 91 (Z).

ERIOCAULON SETACEUM var. CAPILLUS-NAIADIS (Hook. f.) Moldenke

Additional & emended bibliography: Prain, Bengal Pl., imp. 2, 2: 848 & 985. 1963; Moldenke, Phytologia 29: 221 & 226--229. 1974.

ERIOCAULON SEXANGULARE L.

Additional & emended bibliography: J. Grah., Cat. Pl. Bomb. 231. 1839; Schnitzl., Iconogr. 1: pl. 46, fig. 6. 1845; Woodr., Journ. Bomb. Nat. 13: 429. 1901; Cooke, Fl. Presid. Bombay, ed. 1, 2: 842 & 847. 1908; Dunn & Tutchet, Kew Bull. Misc. Inf. Addit. Ser. 10: 291 & 292. 1912; M. R. Henderson, Malay. Wild Fls. Monocot., imp. 1, 212, fig. 127. 1954; Pételot, Pl. Méd. Camb. Laos & Viet. 3: 267 (1954) and 4: 10, 49, 58, 113, 208, 209, & 295. 1954; Cooke, Fl. Presid. Bombay, ed. 2, imp. 1, 3: 354 & 359 (1958) and ed. 2, imp. 2, 3: 354 & 359. 1967; M. R. Henderson, Malay. Wild Fls. Monocot., imp. 2, 212, fig. 127. 1974; Heslop-Harrison, Ind. Kew. Suppl. 15: 51. 1974; Moldenke, Phytologia 29: 284, 285, & 390 (1974), 30: 259 (1975), 31: 390 (1975), and 32: 500. 1976.

Additional & emended illustrations: Schnitzl., Iconogr. 1: pl. 46, fig. 6. 1845; M. R. Henderson, Malay. Wild Fls. Monocot., imp. 1, 212, fig. 127 (1954) and imp. 2, 212, fig. 127. 1974.

Cooke (1908) cites Dalzell s.n., Stocks s.n., and two Woodrow s.n. collections, all from Bombay, where he says the species blooms in September. He gives the overall distribution of the species as "India (W. Peninsula); Ceylon, Tropical Asia, Madagascar".

Henderson (1974) records the common names "Asiatic pipewort" and "rumput butang" from Malaya and speaks of the plant as "Common in the lowlands in open wet places, ditches, ricefields, etc." Hu encountered it also in "wet places" in Hong Kong. My wife and I found it in the water of flooded marshlands in Sri Lanka. Kuntze (1891) records the species from Singapore.

The Jayasuriya 1520, distributed as E. sexangulare, is a mixture of this and of the type collection of E. longicuspe var. zeylanicum Moldenke.

Additional citations: INDIA: Maharashtra: Vartak RD.24 (Ac). SRI LANKA: Bogner 473 (Mu), 569 (Mu); Moldenke, Moldenke, Sumithraarachchi, & Waas 28316 (W--2765444). HONG KONG: S. Y. Hu 11071

(W-2732410). THAILAND: Bogner 416 (Mu).

ERIOCAULON SIGMOIDEUM C. Wright

Additional bibliography: León & Alain, Fl. Cuba, imp. 2, 1: 280 & 423. 1974; Moldenke, Phytologia 29: 285 (1974) and 31: 397. 1975.

The label on what I take to be Charles Wright's no. 3737 in the United States National Herbarium bears no number, but it seems quite definite that the specimen is part of his 3737 collection.

The Britton, Britton, & Wilson 14948, distributed as E. sigmoideum, is actually E. sclerocephalum Ruhl.

Additional citations: CUBA: Pinar del Río: C. Wright 3737 (W-937194—isotype).

ERIOCAULON SOLLYANUM Royle

Additional & amended bibliography: Woodr., Journ. Bomb. Nat. 13: 429. 1901; Cooke, Fl. Presid. Bombay, ed. 1, 2: 842 & 848—849 (1908) and ed. 2, imp. 1, 3: 354 & 361. 1958; Prain, Bengal Fl., imp. 2, 2: 848, 849, & 985. 1963; Cooke, Fl. Presid. Bombay, ed. 2, imp. 2, 3: 354 & 361. 1967; Moldenke, Phytologia 29: 200, 205, & 230 (1974) and 31: 389. 1975.

Cooke (1908) cites Dalzell s.n., Law s.n., and Stocks s.n. from Bombay and Stocks s.n. from Sind, giving the overall distribution of the species as "Throughout India". He comments that it "Seems scarcely to differ from E. infaustum, N. E. Brown, in Dyer, Fl. Trop. Africa, v. 8 (1903) p. 253." Kuntze (1891) records it from Java.

ERIOCAULON SPECTABILE F. Muell.

Additional bibliography: Moldenke, Phytologia 25: 77 (1972) and 31: 391. 1975.

Dunlop found this plant growing in gravelly soil of a damp creek bed, flowering in July.

Additional citations: AUSTRALIAN ISLANDS: Maria: C. R. Dunlop 2810 [Herb. North. Terr. 36295] (Z).

ERIOCAULON SPRUCEANUM Körn.

Additional bibliography: Moldenke, Phytologia 26: 39 (1973) and 31: 381. 1975.

Pinto E. & Sastre encountered this species "en lugar húmedo, al lado de un morichal", at 180 meters altitude, flowering in March, the flowers said to be white.

Additional citations: COLOMBIA: Vichada: Pinto E. & Sastre 1439 (W-2748155).

ERIOCAULON SPRUCEANUM f. VIVIPARUM Moldenke

Additional bibliography: Moldenke, Phytologia 25: 78. 1972.

The Eitens refer to this as a plant growing with its base in water at brooksides, rooted in brown sand "in light shade of narrow gallery scrub", describe the flower-heads as white, and found

it in flower and fruit in September.

Additional citations: BRAZIL: Mato Grosso: Eiten & Eiten 8625 (W-2757750).

ERIOCAULON STELLULATUM Körn.

Additional bibliography: Woodr., Journ. Bomb. Nat. 13: 429. 1901; Cooke, Fl. Presid. Bombay, ed. 1, 2: 842 & 846 (1908), ed. 2, imp. 1, 3: 354 & 358 (1958), and ed. 2, imp. 2, 3: 354 & 358. 1967; Moldenke, Phytologia 29: 221 & 231. 1974.

Cooke (1908) cites Stocks s.n. and Talbot 1598 from Bombay, where he says it blooms in February. He gives its overall distribution as "India (W. Peninsula)" only.

Additional citations: INDIA: Maharashtra: Vartak RD.25 (Id).

ERIOCAULON STENOPHYLLUM R. E. Fries

Additional bibliography: Wangerin in Just, Bot. Jahresber. 46 (1): 402. 1925; Fedde in Just, Bot. Jahresber. 46 (2): 596. 1929; Moldenke, Phytologia 26: 40. 1973.

ERIOCAULON STEYERMARKII Moldenke

Additional bibliography: Moldenke, Phytologia 29: 231 (1974) and 31: 384. 1975.

Bogner reports this plant as having its leaves "mostly submerged".

Additional citations: VENEZUELA: Bolívar: Bogner 1057 (Mu).

ERIOCAULON STEYERMARKII var. BAHIENSE Moldenke, Phytologia 31: 229. 1975.

Bibliography: Moldenke, Phytologia 21: 229 & 384. 1975.

Citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 16068 (Z-type).

ERIOCAULON STRAMINEUM Körn.

Additional bibliography: Moldenke, Phytologia 25: 79-80. 1972.

Additional citations: BRAZIL: Mato Grosso: Irwin, Souza, Grear, & Reis dos Santos 17428 (W-2759064).

ERIOCAULON STRIATUM Lam.

Additional bibliography: Heslop-Harrison, Ind. Kew. Suppl. 15: 52. 1974; Moldenke, Phytologia 29: 231. 1974.

ERIOCAULON SUBGLAUCUM Ruhl.

Additional bibliography: Moldenke, Phytologia 29: 232. 1974.

Additional citations: SRI LANKA: Moldenke, Moldenke, Jayasuriya, & Sumithraarachchi 28285 (W-2765382).

ERIOCAULON TENUIFOLIUM f. VIVIPARUM Moldenke, Phytologia 31: 360. 1975.

Bibliography: Moldenke, Phytologia 31: 360 & 384. 1975.

Citations: BRAZIL: Amazonas: Murça Pires, Cavalcante, Magnago,



& Silva 13980 [Murça Pires & al. 13975] (W--2740219--type).

ERIOCAULON TEPICANUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 25: 82. 1972.

Collectors have found this plant in anthesis in January, February, and August.

Additional citations: MEXICO: Nayarit: Edw. Palmer 2029 (W--1491594--isotype); J. N. Rose 2105 (W--301007).

ERIOCAULON TEXENSE Körn.

Additional bibliography: Moldenke, *Phytologia* 26: 465 (1973) and 29: 111 & 204. 1974; D. S. & H. B. Correll, *Aquat. & Wetland Pl. SW. U. S.*, imp. 2, 1: 592--593, fig. 303 (1975) and imp. 2, 2: 1751. 1975.

Additional illustrations: D. S. & H. B. Correll, *Aquat. & Wetland Pl. SW. U. S.*, imp. 2, 1: 592, fig. 303. 1975.

ERIOCAULON THWAITESII Körn.

Additional bibliography: Moldenke, *Phytologia* 29: 202, 210, & 234--236. 1974.

Jayasuriya describes this plant as having the "heads pale dirty-brown" and encountered it in wet spots in savanna land at low altitudes, flowering in May.

Additional citations: INDIA: Maharashtra: Vartak RD.26 (Ac).

SRI LANKA: Jayasuriya 1950 (Ld); Moldenke, Moldenke, Dasanayake, & Jayasuriya 28340 (W--2765409), 28341 (E, W--2765408); Moldenke, Moldenke, Jayasuriya, & Sumithraarachchi 28310 (W--2765392), 28341 (Gz, Mi, Sl); Sumithraarachchi & Waas DBS.261 (Z).

ERIOCAULON TORTUOSUM F. Muell.

Additional bibliography: Moldenke, *Phytologia* 25: 83. 1972.

Nelson describes this plant as an erect herb to 6 inches tall, the leaves flaccid, forming a rosette at the base of the plant, the inflorescences small, gray, and globular, and found it to be "common in muddy channels", flowering and fruiting in June.

Additional citations: AUSTRALIA: Northern Territory: D. J. Nelson 1125 [Herb. North. Terr. 11257] (Z).

ERIOCAULON TRUNCATUM Hamilt.

Additional & amended bibliography: Diels, *Fl. Cent.-China* 236. 1902; Dunn & Tutchter, *Kew Bull. Misc. Inf. Addit. Ser.* 10: 291 & 292. 1912; M. R. Henderson, *Malay. Wild Fls. Monocot.*, imp. 1, 212. 1954; Prain, *Bengal Fl.*, imp. 2, 2: 848 & 985. 1963; Malhotra & Moorthy, *Bull. Bot. Surv. India* 13: 314. 1971; Hartley, Dunstone, Fitzgerald, Johns, & Lamberton, *Lloydia* 36: 235. 1973; Farnsworth, *Pharmacog. Titles* 9 (1): x. 1974; M. R. Henderson, *Malay. Wild Fls. Monocot.*, imp. 2, 212. 1974; Moldenke, *Phytologia* 29: 284 & 285. 1974.

Hu says of this plant "bracts blackish, white-papillose, apex pointed; heads gray, 2--3 mm. in diameter" and found it growing in

a "puddle over rock" and "submerged in a pool edge", flowering and fruiting in October and November. Hartley and his associates (1973) encountered it in marshy lake beds and cite their no. 9679 from New Guinea. Malhotra & Moorthy (1971) cite their no. 109183. Henderson (1974) calls it the "shortleaved pipewort" in Malaya and reports that there it is "Common in the lowlands in open, damp places, paths, etc., often in damp, sandy places." Sumithraarachchi, in Sri Lanka, refers to the heads as brownish and found the plant growing along a roadside stream of water, flowering and fruiting in July.

Additional citations: SRI LANKA: Sumithraarachchi DBS.400 (Ac, Id, Z). HONG KONG: S. Y. Hu 5957 (W--2697302), 12457 (W--2730690).

ERIOCAULON TUBERIFERUM Kulkarni & Desai, Journ. Bombay Nat. Hist. Soc. 71: [80]--84, fig. 1--19. 1974.

Bibliography: Kulkarni & Desai, Journ. Bombay Nat. Hist. Soc. 67: 134--135, fig. 1--8 (1970) and 71: [80]--84, fig. 1--19. 1974; Moldenke, Phytologia 31: 389. 1975; Shah, Biol. Abstr. 59: 6329. 1975.

Illustrations: Kulkarni & Desai, Journ. Bombay Nat. Hist. Soc. 67: betw. 134 & 135, fig. 1--8 (1970) and 71: 81, fig. 1--19. 1974.

"The type of this species "was collected from Panhala (938 m. alt.), Kolhapur district, Maharashtra, [India], along the margins of puddles on 28th July 1968 and is deposited in National Herbarium, Calcutta under Kulkarni and Desai 537 and the Isotypes 538--540 are deposited in the Herbarium of the Shivaji University, Botany Department, Hoyalpur.

"E. tuberiferum is closely related to E. ritchieanum Ruhl. and E. leucomelas Steud. From the former it differs in the transition of the anther colour from white in younger condition to blackish at maturity and in its distinct anisopetalous male flower, the largest petal of which projects beyond the receptacular bractlets giving fringed appearance to the head. From the latter species it differs in the petal characters of the male flowers and in having distinctly oblique mouth for the peduncular sheaths. It differs from all the species of Eriocaulon known so far in its tuberiferous habit.

"Members of this species are commonly seen along the margins of puddles at Panhala from July--September. They grow in association with Isoetes. The species has also been collected from Radhanagari (Kolhapur district) where it grows in similar habitat. Further intensive collections may reveal its presence in other areas of Dahyadri ranges enjoying similar ecological conditions.

"In spite of very close observations during the last three years, we have failed to collect fruiting specimens of this species from both the localities. It appears probable that the species mainly reproduces by tubers in nature.

"The Royal Botanic Gardens, Kew, when referred to, informed us that the specimens resembled E. leucomelas Steud. (E. melaleucum Mart.) superficially, appearing to be distinct both in

foliage and flower and belonged to E. ritchleanum Ruhl. but with abnormal flowers possibly due to nematode attack. The structures referred to here as tubers were suspected by the authorities of Kew to be nematode cysts. However, later studies by us on the ontogeny and the germination of the tubers.....precluded the possibility of these being nematode cysts."

#### ERIOCAULON TUBIFLORUM Van Royen

Additional bibliography: Moldenke, *Phytologia* 25: 86. 1972; Hartley, Dunstone, Fitzgerald, Johns, & Lamberton, *Lloydia* 36: 235. 1973; Farnsworth, *Pharmacog. Titles* 9 (1): x. 1974.

Hartley and his associates (1973) found this plant "Forming cushions in secondary alpine meadow" in New Guinea and cite their no. 12896.

#### ERIOCAULON WALKERI Hook. f.

Additional bibliography: Moldenke, *Phytologia* 29: 221 & 237. 1974.

Jayasuriya encountered this species in wet sandy spots, flowering in May.

Additional citations: SRI LANKA: Jayasuriya 2105 (Ld, Z).

#### ERIOCAULON WIGHTIANUM Mart.

Additional bibliography: Woodr., *Journ. Bomb. Nat.* 13: 429. 1901; Cooke, *Fl. Presid. Bombay*, ed. 1, 2: 842 & 845. 1908; Dunn & Tutcher, *Kew Bull. Misc. Inf. Addit. Ser.* 10: 291 & 292. 1912; Cooke, *Fl. Presid. Bombay*, ed. 2, imp. 1, 3: 353 & 356-357 (1958) and ed. 2, imp. 2, 3: 353 & 356-357. 1967; Moldenke, *Phytologia* 29: 211, 213, 229, & 237-238 (1974) and 31: 398. 1975.

Cooke (1908) cites from Bombay only Dalzell s.n., Stocks s.n., and Talbot 771, where he says that the plant flowers in October and November. He gives its overall distribution as "India (Birma, W. Peninsula); Ceylon".

#### ERIOCAULON WILLDENOVIANUM Moldenke

Additional synonymy: Eriocaulou longifolium Lorence, in herb.

Additional bibliography: Heslop-Harrison, *Ind. Kew. Suppl.* 15: 52. 1974; Moldenke, *Phytologia* 29: 285. 1974.

Additional citations: SRI LANKA: Moldenke, Moldenke, Sumithraarachchi, & Waas 28318 (W-2765413).

#### ERIOCAULON XERANTHEMUM Mart.

Additional bibliography: Woodr., *Journ. Bomb. Nat.* 13: 429. 1901; Cooke, *Fl. Presid. Bombay*, ed. 1, 2: 842 & 849-850 (1908) and ed. 2, imp. 1, 3: 354 & 362. 1958; Prain, *Bengal Pl.*, imp. 2, 2: 848, 849, & 985. 1963; Cooke, *Fl. Presid. Bombay*, ed. 2, imp. 2, 3: 354 & 362. 1967; Malhotra & Moorthy, *Bull. Bot. Surv. India* 13: 314. 1971; Saxena, *Bull. Bot. Surv. India* 13: 89. 1971; Moldenke, *Phytologia* 29: 239. 1974.

Cooke (1908) cites from Bombay Dalzell s.n., Stocks s.n., and Talbot 2945 and gives the species' overall distribution as

"Throughout India". Saxena (1971) refers to it as growing "In marshy places", found it in flower in September, and cites Saxena 406. Malhotra & Moorthy (1971) cite their no. 122790.

Additional citations: INDIA: Maharashtra: Vartak RD.29 (Ac).

#### LACHNOCAULON Kunth

Additional & emended bibliography: Michx., Fl. Bor.-Am., ed. 1, imp. 1, 2: 166 (1803) and ed. 2, 2: 166. 1820; Dalla Torre & Harms, Gen. Siphonog., imp. 1, 53. 1900; Post & Kuntze, Lexicon 31.2. 1904; Rohweder, Farinos. Veg. Salv. pl. 6, fig. 32 [thesis]. 1954; Rohweder, Abhandl. Geb. Ausl. Univ. Hamb. 61 [C Naturwiss. 13]: pl. 6, fig. 32. 1956; Anon., Pl. Highlands Hammock St. Park 4. 1962; Dalla Torre & Harms, Gen. Siphonog., imp. 2, 53. 1963; J. Hutchinson, Fam. Flow. Pl., ed. 3, 712. 1973; Ayensu, Rep. Endang. & Threat. Spp. 81, 127, 130, 142, & 148. 1974; León & Alain, Fl. Cuba, imp. 2, 1: 279, 284, & 426. 1974; Michx., Fl. Bor.-Am., ed. 1, imp. 2, 2 [Ewan, Class. Bot. Am. 3]: 166. 1974; Moldenke, Phytologia 29: 285-287 (1974), 29: 508 (1975), 30: 19 & 509 (1975), and 31: 375 & 376. 1975; D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 2, 1: 588, 593, & [594], fig. 304 (1975) and imp. 2, 2: 1757. 1975.

Hutchinson (1973) gives the overall distribution of this genus as "N. and Cent. America". Actually, it is not known from Central America, being limited to the southeastern U. S. A. and Cuba.

The Meisner (1842) reference in the bibliography of this genus is sometimes cited as "1836-43", but the page involved here was actually issued in 1842.

#### LACHNOCAULON ANCEPS (Walt.) Morong

Additional & emended bibliography: Michx., Fl. Bor.-Am., ed. 1, imp. 1, 2: 166 (1803) and ed. 2, 2: 166. 1820; Meisn., Pl. Vasc. Gen. 1: 407. 1842; J. Hutchinson, Fam. Flow. Pl., ed. 1, 2: 67 & 238 (1934) and ed. 2, 2: 567 & 768. 1959; León & Alain, Fl. Cuba, imp. 2, 1: 284 & 426. 1974; Michx., Fl. Bor.-Am., ed. 1, imp. 2, 2 [Ewan, Class. Bot. Am. 3]: 166. 1974; Moldenke, Phytologia 29: 285 (1974) and 31: 375 & 376. 1975; D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 2, 1: 593 & [594], fig. 304 (1975) and imp. 2, 2: 1757. 1975.

Additional illustrations: D. S. & H. B. Correll, Aquat. & Wetland Pl. SW. U. S., imp. 2, 1: [594], fig. 304. 1975.

The R. Kral 20961, distributed as typical L. anceps, is regarded by me as representing f. glabrescens Moldenke.

Additional citations: NORTH CAROLINA: Robeson Co.: Moldenke & Moldenke 29998 (Id, Tu). GEORGIA: Bryan Co.: Moldenke & Moldenke 29943 (Ac). McIntosh Co.: Moldenke & Moldenke 29911 (Id). FLORIDA: Clay Co.: Moldenke & Moldenke 29849 (Id). Hardee Co.: Moldenke & Moldenke 29542 (Id). Levy Co.: Moldenke & Moldenke 29459 (Id). Pasco Co.: Moldenke & Moldenke 29513 (Tu). Putnam Co.: Moldenke & Moldenke 29830 (Kh). Wakulla Co.: Moldenke &

Moldenke 29397 (Gz).

## LACHNOCAULON ANCEPS f. GLABRESCENS Moldenke

Additional bibliography: Moldenke, *Phytologia* 25: 91 (1972) and 31: 375 & 376. 1975.

Kral refers to this plant as "rather scarce in boggy open Sphagnum bottom" and his collection is the first record of the genus from Tennessee.

Additional citations: TENNESSEE: Cumberland Co.: R. Kral 50961 (W-2746709).

## LACHNOCAULON BEYRICHLANUM Sporleder

Additional bibliography: Ayensu, *Rep. Endang. & Threat. Pl. Spp.* 81, 127, 130, 142, & 148. 1974; Moldenke, *Phytologia* 29: 286. 1974.

Ayensu (1974) rightly regards this as an endangered species because of its very restricted natural range. It obviously is in need of conservation procedures at once. Another species equally endangered but ignored by Ayensu is Eriocaulon körnickiamum Van Heurck & Muell.-Arg.

## LACHNOCAULON CUBENSE Ruhl.

Additional bibliography: Moldenke, *Phytologia* 25: 91. 1972; León & Alain, *Fl. Cuba, imp. 2*, 1: 284 & 426. 1974.

## LACHNOCAULON DIGYNUM Körn.

Additional bibliography: Moldenke, *Phytologia* 29: 286. 1974.

Additional citations: ALABAMA: Escambia Co.: R. Kral 33835 (lfu).

## LACHNOCAULON EKMANNII Ruhl.

Additional bibliography: Moldenke, *Phytologia* 25: 92. 1972; León & Alain, *Fl. Cuba, imp. 2*, 1: 284 & 426. 1974.

## LACHNOCAULON ENGLERI Ruhl.

Additional bibliography: Moldenke, *Phytologia* 29: 286 & 287. 1974.

Additional citations: ALABAMA: Baldwin Co.: R. Kral 32646 (Mu).

## LACHNOCAULON MINUS (Chapm.) Small

Additional bibliography: Moldenke, *Phytologia* 29: 287 (1974) and 31: 375. 1975.

Kral has encountered this species on sandy pond shores and the sandy edges of limesink ponds — habitats in which my wife and I also often found it.

Additional citations: GEORGIA: Camden Co.: Moldenke & Moldenke 29874 (Id). ALABAMA: Covington Co.: R. Kral 39503 (Mu), 40088 (W-2746711). Houston Co.: R. Kral 47259 (W-2746708).

## LEIOTHERIX Ruhl.

Additional & emended bibliography: Körn. in *Warm., Vidensk. Meddel. Naturh. Foren. Kjöbenh.* 23: 313. 1871; Fedde & Schust.

in Just, Bot. Jahresber. 46 (2): 4. 1924; Fedde in Just, Bot. Jahresber. 46 (2): 624. 1929; J. Hutchinson, Fam. Flow. Pl., ed. 1, 2: 67 & 238, 1934; Moldenke, Lilloa 13: 9. 1947; J. Hutchinson, Fam. Flow. Pl., ed. 2, 2: 576 & 769. 1959; Soukup, Biota 2: 302. 1959; Hocking, Excerpt. Bot. A.21: 211. 1973; Moldenke, Phytologia 29: 287-291, 294, 387-388, 390, 477, 478, & 509 (1974), 30: 114, 115, 323, & 509 (1975), 31: 279, 384, 402, & 408 (1975), 32: 47 (1975), and 32: 510. 1976.

*LEIOTHRIX ARECHAVALETAE* (Körn.) Ruhl.

Additional bibliography: Moldenke, Lilloa 13: 9. 1947; Moldenke, Phytologia 25: 95-96. 1972.

*LEIOTHRIX CURVIFOLIA* (Bong.) Ruhl.

Additional bibliography: Moldenke, Phytologia 29: 288 (1974), 30: 323 (1975), and 31: 408. 1975.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28221 (W-2759063).

*LEIOTHRIX CUSCUTOIDES* Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 29: 288. 1974.

*LEIOTHRIX DUBIA* Alv. Silv.

Additional bibliography: Hocking, Excerpt. Bot. A.21: 211. 1973; Moldenke, Phytologia 26: 44. 1973.

*LEIOTHRIX DUBIA* var. *VILLOSA* Moldenke

Additional bibliography: Hocking, Excerpt. Bot. A.21: 211. 1973; Moldenke, Phytologia 25: 130. 1973.

*LEIOTHRIX EDWALLII* Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 29: 289. 1974.

*LEIOTHRIX FLAVESCENS* (Bong.) Ruhl.

Additional bibliography: Körn. in Warm., Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 313. 1871; Soukup, Biota 2: 302. 1959; Moldenke, Phytologia 29: 289, 314, 387-388, 477, & 478 (1974), and 30: 114 & 115. 1975.

Körnice (1871) cites two Glaziou collections: "In collecti-  
onibus cel. Glaziou n. 3619, e vicinia Rio de Janeiro, et n. 4283 e Serra dos Orgãos. Differt n. 4283 a speciminibus mihi  
cognitis bracteis involucrentibus obscurioribus aureo-fuscis,  
nec non pedunculis numerosis."

Fosberg notes that this plant was "common locally in open  
grassy bog" in São Paulo, while Hatschbach encountered it in  
"brejo" (sedge meadow), flowering and fruiting in January.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca,  
Souza, Reis dos Santos, & Ramos 27113 (W-2759062). Paraná:  
Hatschbach 35772 (Ld). São Paulo: F. R. Fosberg 43329 (Ld).

LEIOTHRIX HIRSUTA (Wikstr.) Ruhl.

Additional bibliography: Moldenke, Phytologia 29: 290 (1974) and 31: 384. 1975.

Harley and his associates refer to this plant as a tufted herb with gray-green leaves and white flower-heads and encountered it in riverside damp sandy soil with sandstone rocks and partly burned-over vegetation, flowering in February.

The Belém & Pinheiro 2439, distributed as and previously cited by me as L. hirsuta, is actually now regarded by me as representing var. obtusata Moldenke, while Brade 10983 is now regarded as the type collection of var. tonsilis Moldenke.

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 15951 (K).

LEIOTHRIX HIRSUTA var. BLANCHETIANA (Körn.) Ruhl.

Additional bibliography: Moldenke, Phytologia 25: 133. 1973.

Harley and his associates describe this plant as "forming erect tufts of leaves, the heads grayish" and found it growing along a "small stream with marsh on white sand and surrounding cerrado on sandstone rock exposures, this plant growing in very wet sand", at an altitude of 950--1000 meters, flowering and fruiting in March.

The Luschnath s.n. [Campos St. João, Martio 1834], distributed as this variety and so cited by me in a previous installment of these notes, is now regarded by me as var. tonsilis Moldenke,

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 16663 (Ld).

LEIOTHRIX HIRSUTA var. OBTUSA Alv. Silv.

Additional bibliography: Moldenke, Phytologia 25: 133 (1973) and 31: 384. 1975.

The Belém & Pinheiro 2439, cited below, was previously erroneously cited by me as the typical form of the species. The plant is described by the collectors as 15 cm. tall, with white inflorescences. It was collected in flower and fruit in June.

Citations: BRAZIL: Bahia: Belém & Pinheiro 2439 (N).

LEIOTHRIX HIRSUTA var. TONSILIS Moldenke, Phytologia 31: 229. 1975.

Bibliography: Moldenke, Phytologia 31: 229 & 384. 1975.

The two collections cited below were previously erroneously cited by me as representing typical L. hirsuta (Wikstr.) Ruhl. and its var. blanchetiana (Körn.) Ruhl. respectively. The variety has been found in flower and fruit in August.

Citations: BRAZIL: Guanabara: Brade 10983 (Ja—26709—isotype, N—type). Rio de Janeiro: Luschnath s.n. [Campos St. João, Martio 1834] (Br, N).

LEIOTHRIX OBTUSIFOLIA Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 26: 185. 1973.

**LEIOTHRIX RUFULA** (A. St.-Hil.) Ruhl.

Additional bibliography: A. St.-Hil., *Linnaea* 16: Litt. 187. 1842; Moldenke, *Phytologia* 25: 135--136 & 240. 1973.

**LEIOTHRIX SCLEROPHYLLA** Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 4. 1924; Moldenke, *Phytologia* 29: 291. 1974.

The Eitens refer to the flowers of this plant as white and encountered it by low rounded rocky outcrops in open fields at 1250 meters altitude.

Additional citations: BRAZIL: Minas Gerais: Eiten & Eiten 6711 (W--2757756).

**LEIOTHRIX SPERGULA** Ruhl.

Additional bibliography: Moldenke, *Phytologia* 26: 186. 1973.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27905 (W--2759061).

**LEIOTHRIX TINGUENSIS** Herzog

Additional bibliography: Moldenke, *Phytologia* 29: 291. 1974.

Harley and his associates encountered this plant in an area of burned-over grasslands, marsh, and cutover woodland on rocky hillsides with talc and metamorphic rock, at 1000 meters altitude, flowering and fruiting in February.

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 16075 (Z).

**LEIOTHRIX UMBRATILIS** var. **BREVIPIES** Moldenke, *Phytologia* 32: 47. 1975.

Bibliography: Moldenke, *Phytologia* 32: 47. 1975.

Citations: VENEZUELA: Bolívar: Bogner 1017 (Mu--type, Z--isotype, Z--photo of type).

**LEIOTHRIX VIVIPARA** (Bong.) Ruhl.

Additional bibliography: Moldenke, *Phytologia* 26: 186 (1973) and 29: 291. 1974.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28299 (W--2759052).

**LEIOTHRIX VIVIPARA** var. **LONGIPILOSA** Moldenke

Additional bibliography: Moldenke, *Phytologia* 25: 138. 1973.

Additional citations: BRAZIL: Minas Gerais: Tryon & Tryon 6784 (N--isotype).

**MESANTHEMUM** Körn.

Additional & emended bibliography: Dalla Torre & Harms, *Gen. Siphonog.*, imp. 1, 53. 1900; Post & Kuntze, *Lexicon* 219 & 361. 1904; Pilger in Engl. & Prantl, *Nat. Pflanzenfam. Ergänz.* 2, Nachtr. 3 zu 2: 37 & 38. 1908; H. Lecoste, *Bull. Bot. Soc. France* 55: 573, 594, 595, 597--602, & 643, fig. 1 & 2. 1909; Wangerin in Just, *Bot. Jahresber.* 46 (1): 402. 1925; J. Hutchinson, *Fam. Flow.*



Pl., ed. 1, 2: 67 & 339 (1934) and ed. 2, 2: 576 & 772. 1959; Dalla Torre & Harms, Gen. Siphonog., imp. 2, 53. 1963; H. P. Riley, Fam. Flow. Pl. S. Afr. 199 & 263. 1963; Gibbs, Chemotax. Flow. Pl. 3: 1884. 1974; Moldenke, Phytologia 29: 291—293 & 509 (1974) and 32: 497 & 510. 1976.

The Lecomte (1909) references in the bibliography above as often cited as "1908", but according to the "Index Kewensis" the latter portion of this volume was not published until 1909, even though the paper included were presented at meetings of the Society held in the latter months of 1908. On the other hand, Stapf (1931) gives "1906" as the proper date for the Pilger (1908) work, but the United States Library of Congress retains the 1908 title-page date as correct.

Gibbs (1974) reports that fructosans and raphides are absent in this genus.

It is worthy of note that Post & Kuntze, Lexicon 219 (1904), raised Eulepis, a section of Eriocaulon proposed by Bongard (1831) for species with "squamis capitulorum radiantibus", to generic rank, designating as type Eriocaulon prescottianum, the first-mentioned species in the section as listed by Bongard. Ruhland (1903) took the name over as a section of Syngonanthus for the other five species listed by Bongard: E. elegans, E. niveum, E. aciphyllum, E. nitidum, and E. anthemiflorum.

MESANTHEMUM ALBIDUM H. Lecomte, Bull. Soc. Bot. France 55: 601--602, fig. 2. 1909.

Additional & emended bibliography: H. Lecomte, Bull. Soc. Bot. France 55: 601--602, fig. 2. 1909; Moldenke, Phytologia 26: 467. 1973.

Emended illustrations: H. Lecomte, Bull. Soc. Bot. France 55: 602, fig. 2. 1909.

The Lecomte (1909) reference cited above is often cited as "1908" and was so cited by me in a previous publication. However, even though Lecomte's paper was read at the November 13, 1908, session of the Society, pages 589--756 of Volume 55 were not issued until 1909.

MESANTHEMUM AURATUM H. Lecomte, Bull. Soc. Bot. France 55: 599--602, fig. 1. 1909.

Additional & emended bibliography: H. Lecomte, Bull. Soc. Bot. France 55: 599--602, fig. 1. 1909; Moldenke, Phytologia 26: 467. 1973.

Emended illustrations: H. Lecomte, Bull. Soc. Bot. France 55: 600, fig. 1. 1909.

The Lecomte (1909) reference cited above is sometime cited as "1908" and was so cited by me in a previous publication. The pages in question, however, were not actually issued until 1909.

MESANTHEMUM ERICI-ROSENII T. Fries

Additional bibliography: Wangerin in Just, Bot. Jahresber. 46 (1): 402. 1925; Moldenke, Phytologia 26: 467. 1973.

**MESANTHEMUM PRESCOTTIANUM** (Bong.) Körn.

Additional & emended bibliography: Post & Kuntze, *Lexicon* 219. 1904; H. Lecomte, *Bull. Soc. Bot. France* 55: 598--599. 1909; Moldenke, *Phytologia* 29: 292. 1974.

As stated under M. albidum above, the Lecomte (1909) reference is sometime cited as "1908", but the pages involved were not actually issued until 1909.

**MESANTHEMUM RADICANS** (Benth.) Körn.

Emended synonymy: Eriocaulon giganteum Afzel. ex Körn., *Linnaea* 27: 573, in syn. 1856 [not E. giganteum Beauverd, 1909, nor (Beauverd) Beauverd, 1949, nor Mart., 1975, nor Riedel, 1959].

Additional & emended bibliography: Hook. f. & Benth. in Hook., *Niger Fl.* 547--548. 1849; H. Lecomte, *Bull. Soc. Bot. France* 55: 598. 1909; Moldenke, *Phytologia* 29: 292--293 (1974) and 32: 497. 1976.

As stated under M. albidum, the Lecomte (1909) reference is sometimes cited as "1908", but the pages involved were not actually issued until 1909.

Material of this taxon has been misidentified and distributed in some herbaria as Eriocaulon latifolium J. E. Sm.

Additional citations: NIGERIA: Dalziel 1112 (Mu). GABON: Bogner 1100 (Mu).

**PAEPALANTHUS** Mart.

Additional synonymy: Adelopus Hoffmgg. ex Moldenke, *Résumé* 227, in syn. 1959.

Additional & emended bibliography: Endl., *Gen. Pl.* 123. 1836; Bojer, *Hort. Maurit.* 361. 1837; Schnitzl., *Iconogr.* 1: pl. 46, fig. 8--12. 1845; Hook. f. & Benth. in Hook, *Niger Fl.* 548. 1849; Miq., *Stirp. Surin.* 221, pl. 65b. 1850; Körn. in Warming, *Vidensk. Meddel. Naturh. Foren. Kjöbenh.* 23: [309]--315. 1871; V. A. Pouls., *Vidensk. Meddel. Naturh. Foren. Kjöbenh.* 40 [ser. 4, 9]: 223, 278, 292, 306, 313--321, 326--332, 336, & 341. 1888; Dalla Torre & Harms, *Gen. Siphonog.*, imp. 1, 53. 1900; Post & Kuntze, *Lexicon* 8, 28, 102, 175, 188--189, 219, 223, 337, 412, 445, 466, 536, 560, 568, & 596. 1904; J. C. Willis, *Man. & Dict. Flow. Pl.*, ed. 2, 368 & 498 (1904) and ed. 3, imp. 1, 378 & 512. 1908; Pilger in Engl. & Prantl, *Nat. Pflanzenfam. Ergänzt.* 2, Nachtr. 3 zu 2: 37 & 38. 1908; H. Lecomte, *Bull. Soc. Bot. France* 55: 594--596. 1909; J. C. Willis, *Man. & Dict. Flow. Pl.*, ed. 3, imp. 2, 378 & 512. 1914; Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 4--5. 1924; Wangerin in Just, *Bot. Jahresber.* 46 (1): 402. 1925; J. C. Willis, *Dict. Flow. Pl.*, ed. 5, 250 & 481. 1925; Pittier, *Man. Pl. Usuel. Venez.* 344 & 441. 1926; Fedde in Just, *Bot. Jahresber.* 46 (2): 651. 1929; J. C. Willis, *Dict. Flow. Pl.*, ed. 6, imp. 1, 250 & 481. 1931; J. Hutchinson, *Fam. Flow. Pl.*, ed. 1, 2: 66, 67, & 240, fig. 21. 1934; J. C. Willis, *Dict. Flow. Pl.*, ed. 6, imp. 2, 250 & 481 (1948), ed. 6, imp. 3, 250 & 481 (1951), ed. 6, imp. 4, 250 & 481 (1955), and ed. 6, imp. 5, 250 & 481. 1957; J. Hutchinson, *Fam. Flow. Pl.*, ed. 2, 2: [575], 576, & 776. 1959; Soukup, *Biota*

2: 300 & 302. 1959; J. C. Willis, Dict. Flow. Pl., ed. 6, imp. 6, 250 & 481. 1960; Dalla Torre & Harms, Gen. Siphonog., imp. 2, 53. 1963; Anon., Ind. Bot. Guay. Highl. 16. 1972; Gibbs, Chemotax. Flow. Pl. 3: 1883. 1974; Heslop-Harrison, Ind. Kew. Suppl. 15: 99 & 148. 1974; León & Alain, Fl. Cuba, imp. 2, 1: 279, 281-283, & 428, fig. 113. 1974; Moldenke, Biol. Abstr. 57: 3780. 1974; Moldenke, Phytologia 29: 281, 287, 293-330, 386-394, 477-503, 506, 507, & 510 (1974), 30: 15-62, 72-125, 251-280, 317-343, 507, 510, & 512 (1975), 31: 232, 379-383, 385, 387, 389, 392, 396-398, 403-406, & 408 (1975), and 32: 47 & 336. 1975; Moldenke, Biol. Abstr. 59: 6926 & 6934. 1975; Molina R., Ceiba 19: 24. 1975; Moldenke, Phytologia 32: 484, 485, 500, 505, 506, & 510, fig. 1. 1976.

The Endlicher reference cited above is often cited as "1836-1856", but the page involved here was actually issued in 1836. The Malme (1931) reference is sometimes erroneously given as "1903". Stapf (1931) gives "1906" as the date for the Pilger (1908) work, but the United States Library of Congress printed card retains the 1908 title-page date as correct.

The Bogner 1069, distributed as Paepalanthus sp., is actually Syngonanthus caulescens (Poir.) Ruhl.

#### PAEPALANTHUS ACANTHOPHYLLUS Ruhl.

Additional bibliography: Moldenke, Phytologia 29: 294, 296, & 306. 1974.

Recent collectors have encountered this plant on sandy campos, among rocks, and in "seasonal marsh of light-gray gleyed soil set in middle of cerrado woodland", flowering and fruiting in February and May.

The Glaziou 22319, cited below, is cited by Ruhland (1903) in his original description of P. speciosus var. glaber Ruhl.

Additional citations: BRAZIL: Distrito Federal: Taxonomy Class Univ. Bras. 68 (W-2757724, W-2757725). Goiás: Glaziou 22319 (Br, S); Hatschbach 36819 (Ld); Hatschbach, Anderson, Barneby, & Gatee 36319 (Ac); Irwin, Harley, & Smith 32704 (W-2709880); Irwin, Reis dos Santos, Souza, & Fonseca 24649 (W-2582518A); Irwin, Souza, & Reis dos Santos 9400 (W-2758999).

#### PAEPALANTHUS ACTINOCEPHALOIDES Alv. Silv.

Additional bibliography: Moldenke, Phytologia 26: 46 (1973) and 30: 19. 1975.

Anderson and his associates found this plant in wet sand in an area of gently sloping open hillsides with sandy soil and sandstone boulders, mostly wet with seeping water, and rocky areas along a rushing stream at base of hill, flowering in February, and describe the flower-heads as white.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35455 (Ub).

**PAEPALANTHUS ACULEATUS** Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 5. 1924; Moldenke, Phytologia 26: 187. 1973.

**PAEPALANTHUS AEQUALIS** (Vell.) J. F. Macbr.

Additional bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 313. 1871; Moldenke, Phytologia 29: 294—295 & 491 (1974) and 30: 49 & 79. 1975.

Körnische (1871) cites Lund s.n. from "In campis ad Mugi des Cruzes prov. S. Paulo, Novembri" and comments that "Pedunculi speciminum dense hirti vel brevibus hirtis-pubescentes". Malme (1901), whose work is sometimes erroneously cited as "1903", cites Mosén 4450 and Regnell II.290 from Minas Gerais "inter saxa campi aridi", collected in September and December.

**PAEPALANTHUS ALBO-VAGINATUS** Alv. Silv.

Additional bibliography: Moldenke, Phytologia 29: 295. 1974. Recent collectors have found this plant in flower and fruit in December.

Additional citations: BRAZIL: Paraná: Reitz & Klein 17461 (N, W—2758203).

**PAEPALANTHUS ALPINUS** Körn.

Additional bibliography: Moldenke, Phytologia 29: 295. 1974. Cleef has encountered this species on "pantano subpáramo con Elechnum loxense, Calamagrostis effusa, Baccharis revoluta y Espeletia killipii", "vertiente seco en el límite superior del subpáramo con Rhynchospora paramorum predominante, asociada con Calamagrostis effusa, Lycopodium contiguum, Arcytophyllum nitidum, Castratella piloselloides y Espeletia grandiflora", and "subpáramo: valle pequeño muy pantanoso con matorral de Diplostephium revolutum con Elechnum loxense, Chusquea y Sphagnum", and describes it as a "planta arrossetada" or "hierba arrossetada común, flores blancas". He found it growing at altitudes of 3100—3660 m., flowering and fruiting in April, May, and July.

Additional citations: COLOMBIA: Cundinamarca: Cleef 3041 (Ld), 3701 (Ut—316659), 4905 (Ut—316637).

**PAEPALANTHUS ALSINOIDES** C. Wright

Additional bibliography: León & Alain, Fl. Cuba, imp. 2, 1: 283 & 428. 1974; Moldenke, Phytologia 29: 295 (1974), 30: 340 (1975), and 31: 403. 1975.

**PAEPALANTHUS ALSINOIDES** var. **MINIMUS** Jennings

Additional bibliography: León & Alain, Fl. Cuba, imp. 2, 1: 283 & 428. 1974; Moldenke, Phytologia 29: 295 (1974) and 30: 340. 1975.

**PAEPALANTHUS AMOENUS** (Bong.) Körn.

Additional bibliography: Moldenke, Phytologia 29: 294—296 &

306 (1974) and 31: 404. 1975.

The M. A. Chase 9221, distributed as and previously cited by me as P. amoenus, actually is P. urbanianus Ruhl.

PAEPALANTHUS ANDICOLA Körn.

Additional bibliography: Moldenke, *Phytologia* 30: 72, 73, & 119 (1975) and 31: 382 & 383. 1975.

Cleef describes this species as "hierba arrosetada" or "planta arrosetada abundante, flores blancas" and encountered it on "subpáramo: vertiente seco pedregoso con Espeletia muiska, Calamagrostis effusa y Hypericum" and "subpáramo rocoso, muy seco, con Arcytophyllum nitidum, Gaultheria rigida y gramíneas", at altitudes of 3160--3500 m., flowering and fruiting in May.

Additional citations: COLOMBIA: Boyacá: Cleef 9839 (Id). Cundinamarca: Cleef 3900 (Ac).

PAEPALANTHUS ANDICOLA var. VILLOSUS Moldenke

Additional bibliography: Moldenke, *Phytologia* 25: 147--148 (1973) and 30: 119. 1975.



Fig. 1. Paepalanthus andicola var. villosus growing among Espeletia grandiflora (sens. lat.) on the Páramo de Palacio, Cundinamarca, Colombia; represented by Cleef 3808; altitude 3360 meters. Photograph by courtesy of Antoine Cleef, taken in May, 1972.

Cleef describes this plant as "hierba arrosetada" or "planta arrosetada muy común, flores blancas" and found it growing in "rastrojo de Arcytophyllum nitidum, Aragoa cupressina y Diplostephium phyllicoides, asociado con Calamagrostis effusa en el límite páramo prop. dicho y subpáramo", "morrena secta (relat.) pedregosa con

Hypericum sp., Chusquea, Oreobolus obtusangulus, Cortaderia y Racocarpus humboldtii", and "páramo seco con frailejónal denso de Espeletia grandiflora, asociado con Paepalanthus colombianus, Campylopus y Lepidozia", at altitudes of 3290--3460 meters, flowering and fruiting in April and May.

Additional citations: COLOMBIA: Boyacá: Cleef 9337 (Ld, Z). Cundinamarca: Cleef 2800 (Ut--316653), 3803 (Ac).

PAEPALANTHUS ARGENTEUS (Bong.) Körn.

Additional bibliography: Moldenke, *Phytologia* 29: 296 (1974) and 30: 60. 1975.

Additional citations: BRAZIL: Minas Gerais: W. R. Anderson 8566 (N).

PAEPALANTHUS ARGYROPUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 4. 1924; Moldenke, *Phytologia* 26: 47, 232, & 469. 1973.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28083 (W--2759003).

PAEPALANTHUS ASCENDENS Alv. Silv.

Additional bibliography: Wangerin in Just, *Bot. Jahresber.* 57 (1): 475. 1937; Moldenke, *Phytologia* 25: 150. 1973.

PAEPALANTHUS ASPER Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 5. 1924; Moldenke, *Phytologia* 29: 297. 1974.

PAEPALANTHUS ATROVAGINATUS Ruhl.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 4. 1924; Moldenke, *Phytologia* 26: 136 (1973) and 30: 43 & 97. 1975.

PAEPALANTHUS AUREUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 5. 1924; Moldenke, *Phytologia* 26: 136. 1973.

PAEPALANTHUS AUYANTEPUIENSIS Moldenke

Additional bibliography: Moldenke, *Phytologia* 29: 297. 1974. Bogner encountered this plant at 2400 meters altitude, flowering and fruiting in February.

Additional citations: VENEZUELA: Bolívar: Bogner 996 (Mu).

PAEPALANTHUS BALANSÆ Ruhl.

Additional bibliography: Moldenke, *Phytologia* 26: 469. 1973.

Additional citations: PARAGUAY: Schinini 5820 (N).

PAEPALANTHUS BARAUNENSIS Alv. Silv.

Additional bibliography: Moldenke, *Phytologia* 26: 136. 1973.

Anderson encountered this plant in wet sand in open places in

a region of hillsides with blocky quartzite outcrops sloping down to streams, with cerrado on the hillsides, gallery forest along the streams, and brejo (sedge meadow) just above the forest. He describes the plant as having "trailing stems" and found it in flower and fruit in April.

Additional citations: BRAZIL: Minas Gerais: W. R. Anderson 8939 (Ld, N); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28209 (W--2759004).

PAEPALANTHUS BARBIGER Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 29: 297. 1974.

Hatschbach and his associates have encountered this plant in sandy soil on "encosta de morro", flowering in October.

Additional citations: BRAZIL: Minas Gerais: Hatschbach & Ferreira 35303 (Ld); Hatschbach & Kocziicki 35348 (Ld).

PAEPALANTHUS BARBULATUS Herzog

Additional bibliography: Moldenke, Phytologia 29: 297 (1974) and 30: 45. 1975.

Hatschbach & Ferreira encountered this plant on "campo pedregoso encosta de morro", flowering in October.

Additional citations: BRAZIL: Minas Gerais: Hatschbach & Ferreira 35310 (Ld).

PAEPALANTHUS BELIZENSIS Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 57: 3780. 1974; Moldenke, Phytologia 29: 298. 1974.

PAEPALANTHUS BIFIDUS (Schrad.) Kunth

Additional bibliography: Soukup, Biota 2: 302. 1959; Moldenke, Phytologia 29: 298--299, 317--319, 323, & 328 (1974), 30: 34, 37, 85, & 110 (1975), and 31: 382, 383, 385, 397, 398, & 404. 1975.

Lindeman encountered this species on a large sand savanna.

The Swallen 4555 and Tavares 835 & 1070, distributed as and previously cited by me as typical P. bifidus, seem better placed as f. brevipes Moldenke, while J. S. de la Cruz 3435 and Maguire & Fanshawe 22974 are mixtures of typical P. bifidus and f. brevipes.

Additional citations: GUYANA: J. S. de la Cruz 3435, in part (D--603773, N); Maguire & Fanshawe 22974, in part (N, W--1907814), 23561, in part (N, W--1907831). SURINAM: Lindeman 4019 (N, W--2734382). BRAZIL: Amapá: Irwin, Egler, & Murça Pires 47324 (W--2435294). Amazônas: Prance, Pena, Forero, & Ramos 4684 (W--2576788). Bahia: Belém 1684 (N). Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27648 (W--2759005). Pará: J. T. Baldwin 4021 (W--1878963).

**PAEPALANTHUS BIFIDUS** f. **BREVIPEDES** Moldenke

Additional bibliography: Moldenke, *Phytologia* 29: 298—299 & 319 (1974) and 31: 382, 383, & 385. 1975.

Collectors have encountered this plant in moist sand on rocks, flowering in September and October and fruiting in May (in addition to months previously reported by me). Tavares comments: "ervinha frequente, sobre areia enxuta".

The J. S. de la Cruz 3435 and Maguire & Fanshawe 22974 collections cited below are mixtures of this form and typical P. bifidus (Schrad.) Kunth.

Additional citations: VENEZUELA: Bolívar: J. A. Steyermark 89671 (W—248671, W—2486397). GUYANA: J. S. de la Cruz 3435, in part (N); Maguire & Fanshawe 22974, in part (W—1907814), 32204 (W—2168878). BRAZIL: Amazonas: Prance, Ramos, Farias, & Philcox 4835 (Id, N, S, W—257308A). Ceará: Swallen 4555 (W—1592043). Minas Gerais: Mexia 5816 (W—1571893—isotype). Paraíba: Tavares 1070 (W—2407871). Pernambuco: Tavares 835 (W—2403792).

**PAEPALANTHUS BOMBACINUS** Alv. Silv.

Additional bibliography: Moldenke, *Phytologia* 29: 300. 1974.

Additional citations: BRAZIL: Minas Gerais: W. R. Anderson 8587 (N).

**PAEPALANTHUS BONGARDI** Kunth

Additional bibliography: Körn. in *Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh.* 23: 313. 1871; Moldenke, *Phytologia* 29: 300 & 328 (1974) and 30: 20, 83, 338, & 339. 1975.

Material of this species has been misidentified and distributed in some herbaria as P. flaccidus (Bong.) Kunth and P. chrysophorus Alv. Silv.

Additional citations: BRAZIL: Minas Gerais: Mello Barreto 6338 (N).

**PAEPALANTHUS BRITTONI** Moldenke

Additional bibliography: León & Alain, *Fl. Cuba*, imp. 2, 1: 282, 283, & 428, fig. 113. 1974; Moldenke, *Phytologia* 29: 300 (1974) and 30: 88 & 328. 1975.

Additional illustrations: León & Alain, *Fl. Cuba*, imp. 2, 1: 282, fig. 113. 1974.

**PAEPALANTHUS BROMELIOIDES** Alv. Silv.

Additional bibliography: Fedde & Schust. in *Just, Bot. Jahresber.* 46 (2): 4. 1924; Moldenke, *Phytologia* 29: 300—301 & 306 (1974) and 30: 40, 78, & 267. 1975.

The Tryons encountered this species in "Grassland and sedgeland (with shrubby areas) with sandstone and quartzite rocks and derived soils".

Additional citations: BRAZIL: Minas Gerais: Tryon & Tryon 2823 (M, N, N).



PAEPALANTHUS BRYOIDES (Riedel) Kunth

Additional bibliography: Moldenke, Phytologia 29: 301 & 317 (1974) and 30: 83 & 118. 1975.

Additional citations: BRAZIL: Minas Gerais: W. R. Anderson 8471 (N); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28578 (W—2759006).

PAEPALANTHUS CALDENSIS Malme

Additional bibliography: Moldenke, Phytologia 29: 301--320 & 492 (1974) and 30: 95 & 107. 1975.

Kummrow encountered this plant in brejo (sedge meadow), flowering in October, and describes the flowers as white. Malme (1901), whose work is sometimes erroneously cited as "1903", comments: "Celeberr Koernicke, qui specimen (unicum) Widgrenianum vidit, novam esse speciem declaravit: 'Scheint neu zu sein. In der Nähe von Paep. neglectus'. Ne vera affinis P. neglecto Koern., abs quo foliis vaginisque glabris, bracteis involucrentibus stramineis, bracteis flores suffulgentibus segmentisque perigonii exterioris obtusissimis recedit."

Additional citations: BRAZIL: Paraná: Kummrow 690 (Ld).

PAEPALANTHUS CALVUS Körn.

Additional bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 313. 1871; Moldenke, Phytologia 29: 302 (1974) and 30: 81 & 89. 1975.

Körn. (1871) cites Warming s.n. from "In monte Serra da Piedade a medio usque ad cacumen haud infrequenter, Jan.—Febr. florens" and gives a detailed description of the plant.

PAEPALANTHUS CAMPTOPHYLLUS Ruhl.

Additional bibliography: Moldenke, Phytologia 26: 142—143 (1973) and 30: 83. 1975.

Emygdio and his associates encountered this plant in shady places at 1700 m. altitude, flowering and fruiting in July, and describe the flowers as white.

Additional citations: BRAZIL: Minas Gerais: Emygdio, Duarte, Becker, & Silva Santos 3547 (N).

PAEPALANTHUS CANDIDUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 26: 143 & 477. 1973.

PAEPALANTHUS CANESCENS var. ATRATUS Moldenke

Additional bibliography: Moldenke, Phytologia 29: 302 (1974) and 31: 385. 1975.

Additional citations: BRAZIL: Goiás: W. R. Anderson 6636 (N—iso type).

PAEPALANTHUS CAPANEMAE Alv. Silv.

Additional bibliography: Wangerin in Just, Bot. Jahresber. 46 (1): 402. 1925; Moldenke, Phytologia 29: 302 (1974) and 30: 113.

1975.

Hatschbach and his associates encountered this plant on wet sandy campos.

Additional citations: BRAZIL: Goiás: Hatschbach, Anderson, Barneby, & Gates 36337 (Ld).

PAEPALANTHUS CAPILLACEUS Klotzsch

Additional bibliography: Moldenke, *Phytologia* 29: 302--303 & 321 (1974) and 31: 385 & 404. 1975.

Moore and his associates found this plant growing "submerged in savanna streams", flowering and fruiting in August.

Additional citations: VENEZUELA: Bolívar: Moore, Ambrose, Dietz, & Pfister 9836 (W--2751668).

PAEPALANTHUS CAPILLACEUS var. PROLIFERUS Gleason

Additional bibliography: Moldenke, *Phytologia* 26: 189--190 (1973) and 29: 321. 1974.

Ruiz-Terán & López-Palacios describe this plant as "Hierba sumergida, enraizada en lajas. Hojas filiformes, 15--20 cm. de largo, verde intensas. Escapos floríferos cilíndricos, erectos, blancos. Escapos fructíferos verde intensos, de  $\approx$  20 cm. de largo. Capítulos floríferos pequeños, globosos, con brácteas parduscas" and found it growing at 1100--1200 meters altitude, flowering and fruiting in July.

Additional citations: VENEZUELA: Bolívar: Ruiz-Terán & López-Palacios 11286 (Mi).

PAEPALANTHUS CAPILLIFOLIUS Moldenke, *Phytologia* 32: 484 & 485, fig. 1. 1976.

Synonymy: Syngonanthus capillifolius Moldenke, in herb.

Bibliography: Moldenke, *Phytologia* 32: 484 & 485, fig. 1. 1976.

Illustrations: Moldenke, *Phytologia* 32: 484, fig. 1. 1976.

Citations: BRAZIL: Minas Gerais: Hatschbach, Anderson, Barneby, & Gates 36456 (Z--type, Z--drawings of type).

PAEPALANTHUS CATHARINAE Ruhl.

Additional bibliography: Moldenke, *Phytologia* 29: 304 (1974) and 30: 94. 1975.

Hatschbach found this plant growing near a stream on campo, in "solo brejoso".

Additional citations: BRAZIL: Paraná: Hatschbach 35441 (Ld).

PAEPALANTHUS CEPHALOTRICHUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 4. 1924; Moldenke, *Phytologia* 26: 196. 1973.

PAEPALANTHUS CHIQUITENSIS Herzog

Synonymy: Paepalanthus speciosus var. bolivianus Moldenke, *Phytologia* 28: 467. 1974.

Additional bibliography: Moldenke, *Phytologia* 28: 440 & 467 (1974), 29: 305 (1974), and 31: 387 & 405. 1975.

The type collection of P. speciosus var. bolivianus is the Kuntze s.n. cited below. It is very possible that further study may indicate that what is now passing as P. chiquitensis ought to be given no more than varietal rank. Certainly it is very closely related to P. speciosus (Bong.) Körn. It has been collected at altitudes of 200—900 meters, flowering in May and July, and fruiting in July.

Material of P. chiquitensis has been misidentified and distributed in some herbaria as P. speciosus (Bong.) Körn. and Dupatya speciosa (Bong.) Kuntze. On the other hand, the Cutler 7038, distributed as P. chiquitensis, is actually P. manicatus var. pulvinatus Herzog.

Additional citations: BOLIVIA: Santa Cruz: Kuntze s.n. [200 m. Velasco. VII.92] (N, W—701893).

#### PAEPALANTHUS CHLOROCEPHALUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 5. 1924; Moldenke, Phytologia 26: 198. 1973.

#### PAEPALANTHUS CHRYSOPHORUS Alv. Silv.

Additional bibliography: Moldenke, Phytologia 29: 305 & 329. 1974.

The following collections, previously identified and cited by me in an earlier installment of these notes as P. chrysophorus have proved, on re-examination, actually to be P. flaccidus (Bong.) Kunth: Duarte & Graziela Barreros 7875 [Herb. Brad. 27774], G. Gardner 5244, Godoy s.n. [Herb. Inst. Bot. S. Paulo 8431], Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28576, Irwin, Harley, & Onishi 29543, Irwin, Reis dos Santos, Souza, & Fonsêca 21958, Macedo 2780 & 3019, Mello Barreto 9844 [Herb. Jard. Bot. Belo Horiz. 25340], and Mendes Magalhães 1120 [Herb. Jard. Bot. Belo Horiz. 39318], while Mello Barreto 6338 is P. bongardi Kunth.

Anderson has collected what seems to be the true P. chrysophorus in sandy soil of brejo (sedge meadow) in an area of gallery forest, adjacent brejo, and drier higher slopes with grassy campo or rocky cerrado, at 1230 meters altitude, flowering and fruiting in May, and describes it as an herb with white flower-heads.

Additional citations: BRAZIL: Goiás: W. R. Anderson 10398 (N, Z); Hatschbach 36733 (Ld).

#### PAEPALANTHUS CILIOLATUS Ruhl.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 29: 305. 1974.

#### PAEPALANTHUS CLAUSSENTIANUS Körn.

Additional bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 310. 1871; Moldenke, Phytologia 29: 305 & 497 (1974), 30: 273, 275, & 332 (1975), and 31: 392. 1975.

Körn. (1871) cites Warming s.n. from "In campis ad Lagoa San-

ta, Nov., Dec., Febrero--Junio. Crescit inprimis in collibus camporum, in declivibus graminosis ('barancas'), mense Junio vulgatissime florens".

Additional citations: BRAZIL: Distrito Federal: Hatschbach 36990 (Ld); Irwin & Soderstrom 5126 (W--2759044), 5760 (W--2759046); Irwin, Souza, & Reis dos Santos 8025 (W--2759045). Goiás: W. R. Anderson 10397 (N); Macedo 3688 (S). Minas Gerais: W. R. Anderson 8641 (N).

#### PAEPALANTHUS COLUMBIENSIS Ruhl.

Additional & emended synonymy: Paepalanthus columbianus Ruhl. ex Pittier, Man. Pl. Usuel. Venez. 344 & 441. 1926. Paepalanthus colombianus Cleef, in herb.

Additional bibliography: Pittier, Man. Pl. Usuel. Venez. 344 & 441. 1926; Moldenke, Phytologia 30: 72--73 (1975) and 31: 382. 1975.

López-Palacios describes this as a "Planta arrositada; hojas glabras; cabezuelas blanquecinas" and found it in flower in June. Ruiz-Terán refers to it as an "Hierba rosulada, ± 20 cm. de largo, incluyendo la inflorescencia. Hojas deltado-lineares o deltado-sublancoadas, laxipubescentes en ambas caras, ciliadas, mucronado espinascente en el ápice, 5--8 cm. x 8--10 mm. Capítulos subglobosos, 10--12 mm. de diámetro. Flores blancas a blanco grisáceas."

Cleef encountered it on a "subpáramo seco pedregoso con Espeletia garciae, Axonopus affinis y Maxillaria aurea var. gigantea, asociada con Hypericum", "vertiente húmido con Calamagrostis effusa, Chusquea, Espeletia grandiflora, Hypericum y Oreobolus obtusangulus", and "subpáramo: vertiente seco muy pedregoso con rastrojo de Arcytophyllum nitidum y Gaylussacia buxifolia, asociado con Espeletia glandulosa y Cladonia spp.", and describes it as a "planta arrositada" or "hierba arrositada, tallo 50 cm., flores blancas, muy común". He encountered it at 2825--3300 m. altitude, flowering and fruiting in May.

Additional citations: COLOMBIA: Antioquia: López-Palacios 3584 (Ld). Boyacá: Cleef 9741 (Ac). Cundinamarca: Cleef 3394 (Ut--316652). Santander: Cleef, García B., & Jaramillo M. 3526 (Ld). VENEZUELA: Apure: Ruiz-Terán & López-Figueiras 8823 (Ld).

#### PAEPALANTHUS COMANS Alv. Silv.

Additional bibliography: Moldenke, Phytologia 26: 232--233 & 235. 1973.

Additional & emended citations: BRAZIL: Minas Gerais: Irwin, Reis dos Santos, Souza, & Fonsêca 22020a (W--2759047); Mexia 5881 (F--767670, Go, Mi).

#### PAEPALANTHUS CORDATUS Ruhl.

Additional bibliography: Moldenke, Phytologia 29: 294, 296, & 306. 1974.

Additional citations: BRAZIL: Goiás: Irwin, Grear, Souza, & Reis dos Santos 13588 (W-2759002).

PAEPALANTHUS COSTARICENSIS Moldenke

Additional bibliography: Moldenke, Phytologia 29: 306-307 (1974) and 31: 392. 1975.

The cultivated material cited below is said to have been grown from seeds of Bogner 928, collected in Costa Rica.

Additional citations: CULTIVATED: Germany: Herb. Bot. Gart. Münch. Kult. 2174 [Bogner 928 seeds] (Mu).

PAEPALANTHUS COUTOËNSIS Moldenke

Additional bibliography: Moldenke, Phytologia 29: 307 (1974) and 30: 267 & 275. 1975.

The Belém & Pinheiro 2113 & 2485, previously cited by me as P. coutoënsis, are now regarded by me as representing P. ramosus (Wikstr.) Kunth.

PAEPALANTHUS CRASSICAULIS Körn.

Additional bibliography: Moldenke, Phytologia 29: 307 & 310 (1974) and 30: 72 & 119. 1975.

Steyermark encountered this plant "on open ground in exposed places where there are fewer shrubs but also in dense soto bosque growth". His no. 54409, cited below, was previously erroneously cited by me as P. andicola Körn.

Cleef describes the plant as a "planta arrosetada muy común, flores blancas" and found it growing on "turbera subpáramuna con Sphagnum predominante, asociado con Espeletia arbelaezii, Xyris y gramíneas", at 3290 meters altitude, flowering and fruiting in May.

Additional citations: COLOMBIA: Boyacá: Cleef 9859 (Ut-316656). ECUADOR: Loja: J. A. Steyermark 54409 (N, S).

PAEPALANTHUS CRATERIFORMIS Alv. Silv.

Additional bibliography: Moldenke, Phytologia 26: 243-244. 1973.

Hatschbach and his associates encountered this plant in wet rocky soil, at an altitude of 1300-1500 meters, flowering and fruiting in February.

Additional citations: BRAZIL: Goiás: Hatschbach, Anderson, Barney, & Gates 36349 (Id).

PAEPALANTHUS CRISTATUS Moldenke

Additional bibliography: Moldenke, Phytologia 26: 244. 1973.

Bogner encountered this plant at 2400 meters altitude, flowering and fruiting in February. Material has been misidentified and distributed in some herbaria as Syngonanthus sp.

Additional citations: VENEZUELA: Bolívar: Bogner 1010 (Mu).

PAEPALANTHUS CRYOCEPHALUS Alv. Silv.

Additional bibliography: Moldenke, Phytologia 29: 307. 1974.

Additional citations: BRAZIL: Minas Gerais: Hatschbach 30113 (N).

PAEPALANTHUS CUMBRICOLA Moldenke

Additional bibliography: Moldenke, *Phytologia* 26: 244—245. 1973.

Recent collectors describe this plant as "forming tufts, leaves light-green, heads gray-white" and have found it growing in open boggy savannas, at altitudes of 1600—2350 meters, flowering and fruiting in August. It has been misidentified and distributed in some herbaria as Syngonanthus sp.

Additional citations: VENEZUELA: Bolívar: Moore, Ambrose, Dietz, & Pfister 9813 (W—2751689).

PAEPALANTHUS DENSIFOLIUS Alv. Silv.

Additional bibliography: Wangerin in Just, *Bot. Jahresber.* 46 (1): 402. 1925; Fedde in Just, *Bot. Jahresber.* 46 (2): 651. 1929; Moldenke, *Phytologia* 26: 249 (1973) and 30: 107. 1975.

PAEPALANTHUS DESPERADO Ruhl.

Additional bibliography: Moldenke, *Phytologia* 26: 250 (1973) and 30: 97. 1975.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27519 (W—2769048).

PAEPALANTHUS DICHROMOLEPIS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 4. 1924; Moldenke, *Phytologia* 26: 254 (1973) and 30: 95. 1975.

Additional citations: BRAZIL: Goiás: Irwin, Souza, & Reis dos Santos 9776 (W—2759042).

PAEPALANTHUS DISTICHOPHYLLUS Mart.

Additional synonymy: Paepalanthus distichophyllus var.  $\gamma$  Körn. in Warming, *Vidensk. Meddel. Naturh. Foren. Kjöbenh.* 23: 310—311. 1871.

Additional bibliography: Körn. in Warming, *Vidensk. Meddel. Naturh. Foren. Kjöbenh.* 23: 310—311. 1871; Moldenke, *Phytologia* 29: 307—308. 1974.

Körn. describes his unnamed variety as "foliis versus basum caulis sensim brevioribus ibique circiter 3 lineas longis, ceterum varietati  $\alpha$  Kcke. l. c. [in Mart. *Fl. Bras.*] 349 aequa". He bases it on Reinhardt s.n. and Libon s.n. from the Serra do Cipó, Minas Gerais, Brazil, deposited in the Lund herbarium.

PAEPALANTHUS DUPATYA Mart.

Additional bibliography: Moldenke, *Phytologia* 29: 308 (1974) and 30: 336. 1975.

Hatschbach and his associates describe this plant as 70 cm. tall.

Additional citations: BRAZIL: Minas Gerais: Hatschbach, Ander-

son, Barneby, & Gates 36492 (Ld).

PAEPALANTHUS ELATISSIMUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 26: 471. 1973.

PAEPALANTHUS ELONGATUS (Bong.) Körn.

Additional bibliography: Moldenke, Phytologia 29: 308—309 (1974), 30: 57, 269—271, & 322 (1975), and 31: 385. 1975.

Irwin and his associates describe this plant as caespitose and encountered it in wet places in cerrado, at 800 meters altitude, fruiting in April. Hatschbach found it growing in sandy campos, flowering and fruiting in May.

Additional citations: BRAZIL: Goiás: Hatschbach 36826 (Ld); Irwin, Grear, Souza, & Reis dos Santos 14564 (N).

PAEPALANTHUS ELONGATUS var. ANGUSTIFOLIUS Alv. Silv.

Additional bibliography: Moldenke, Phytologia 29: 309 (1974) and 31: 385. 1975.

Hatschbach found this plant growing in wet sandy campos.

Additional citations: BRAZIL: Goiás: Hatschbach 36772 (Ld); Hatschbach, Anderson, Barneby, & Gates 36394 (Ac); Irwin, Grear, Souza, & Reis dos Santos 13351 (N).

PAEPALANTHUS ELONGATUS var. CILIATUS Körn.

Additional bibliography: Moldenke, Phytologia 29: 308 & 309 (1974) and 30: 269—271. 1975.

Emygdio and his associates encountered this plant at 1350 m. altitude and describe the flowers as "branca-sujo",

Additional citations: BRAZIL: Minas Gerais: Emygdio, Duarte, Becker, & Silva Santos 3601 (N).

PAEPALANTHUS ELONGATUS f. GRAMINIFOLIUS Herzog

Additional bibliography: Moldenke, Phytologia 29: 309. 1974.

Irwin and his associates describe this plant as having inflorescences up to 50 cm. tall and white flower-heads. They refer to it as "frequent" on campos at 1250 meters altitude, flowering and fruiting in March. Their collection, cited below, was erroneously distributed as Syngonanthus euschemus Ruhl., apparently through a mixup in labeling. It is their no. 13253 which is really Syngonanthus euschemus, provided, of course, that the specimen submitted to me for identification was properly labeled.

Additional citations: BRAZIL: Goiás: Irwin, Grear, Souza, & Reis dos Santos 13298 (N).

PAEPALANTHUS ELONGATUS var. LONGIBRACTEATUS Moldenke

Additional bibliography: Moldenke, Phytologia 29: 309 (1974) and 31: 385. 1975.

Additional citations: BRAZIL: Goiás: Irwin, Grear, Souza, & Reis dos Santos 12374 (N—isotype).

**PAEPALANTHUS ENSIFOLIUS** (H.B.K.) Kunth

Additional bibliography: Soukup, *Biota* 2: 302. 1959; Moldenke, *Phytologia* 29: 310 (1974), 30: 72 (1975), and 31: 404. 1975.

The Steyermark collections cited below were previously erroneously cited by me as *P. andicola* Körn., a very closely related species. *P. ensifolius* has been collected in flower in September and in fruit in October at 2800 meters altitude.

Additional citations: ECUADOR: Loja: J. A. Steyermark 54413 (N), 54444a (N); Thien 804 (Ld).

**PAEPALANTHUS ERIOCAULOIDES** Ruhl.

Additional bibliography: Moldenke, *Phytologia* 26: 483. 1973.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27140 (W-2759051).

**PAEPALANTHUS EXTREMENSIS** Alv. Silv.

Additional bibliography: Moldenke, *Phytologia* 29: 312. 1974.

Additional citations: BRAZIL: Goiás: Hatschbach 36837 (Ld); Irwin, Souza, & Reis dos Santos 9494 (W-2759050).

**PAEPALANTHUS FALCIFOLIUS** Körn.

Additional bibliography: Moldenke, *Phytologia* 29: 313-314 (1974), 30: 115 & 332 (1975), and 31: 385 & 397. 1975.

Harley and his associates refer to this plant as having white flowers and have found it growing in an area of cerrado, damp grassland, and streams, at 1200 meters altitude, in flower in January.

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 15633 (Ld). Minas Gerais: Irwin, Reis dos Santos, Souza, & Fonsêca 23356 (W-2759049).

**PAEPALANTHUS FASCICULATUS** (Rottb.) Kunth

Additional bibliography: Moldenke, *Phytologia* 29: 298, 299, & 315-324 (1974), 30: 32, 35, 83, 92, 118, 317, 318, & 330 (1975), and 31: 383. 1975.

Ribeiro refers to this plant as "planta rasteira; flôr marron".

Additional citations: COLOMBIA: Meta: Chaparro, Díaz, & Morales 017 (N). BRAZIL: Amazonas: Ribeiro 15302 [729] (Ld).

**PAEPALANTHUS FASCICULATUS** f. **SPHAEROCEPHALUS** Herzog

Additional bibliography: Moldenke, *Phytologia* 29: 319 & 322-324 (1974) and 31: 383. 1975.

Ruiz-Terán & López-Palacios describe this plant as an "Hierba erecta, caulescente, 8--15 cm. Inflorescencias axilares, largamente pedunculadas, acumuladas hacia el extremo del tallo, formando conjunto corimboide, distal. Capítulos pequeños, globosos, pardúsculos. Heliófila, común en cauces arenosos, secos."

Additional citations: VENEZUELA: Bolívar: Ruiz-Terán & López-Palacios 10939 (Mi).



PAEPALANTHUS FASCICULIFER var. CAPILLIFOLIUS Moldenke, Phytologia 32: 336. 1975.

Bibliography: Moldenke, Phytologia 32: 336. 1975.

Citations: BRAZIL: Goiás: Hatschbach 36839 (Z-type).

PAEPALANTHUS FLACCIDUS (Bong.) Kunth

Additional synonymy: Paepalanthus flaccidus var. juniperinus Kunth apud Malme, Bih. Svensk Vet.-Akad. Handl. 27 (3), no. 11: 27, in obs. 1901.

Additional bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 310. 1871; Moldenke, Phytologia 29: 327--329. 1974.

Körn. (1871) cites Lund s.n. from "In paludibus, S. Carlos prov. S. Paulo, m. Aprili", which, he says, belongs to his var.  $\phi$  with pilose sheaths. Malme (1901), whose work is sometimes erroneously cited as "1903", cites Regnell III.1264 from Minas Gerais and notes that "Specimina reportata ad var. juniperinum Kunth pertinent".

Recent collectors describe this plant as a slender, ascending herb, the stems 15--20 cm. tall, the inflorescences to 40 cm. tall, and the heads white. They have found it growing on wet campos, in brejo (sedge meadows), and in wet places in general, as well as along small watercourses, at altitudes of 1300--1600 meters, flowering from November to March and in May, and in fruit in January and November. Mendes Magalhães comments that he found only a "few" plants. Irwin and his associates encountered the plant in shaded meadows bordering gallery forest in an area of grassy meadows and adjacent sandy campos, in brejo in an area of cerrado on outcrops, brejo, and gallery forest, and in wet places in an area of cutover gallery forest in a deep valley at the base of a mountain peak.

Material of this species has been abundantly misidentified and distributed in herbaria, and even cited by me in a previous installment of these notes, as P. chrysophorus Alv. Silv., a closely similar species. On the other hand, the Mello Barreto 6338, distributed as P. flaccidus, seems to be P. bongardi Kunth instead.

Additional citations: BRAZIL: Minas Gerais: Duarte & Graziela Barreros 27774 (N); Eiten & Eiten 6805 (W--2757734); Godoy s.n. [Herb. Inst. Bot. S. Paulo 8431] (N); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28576 (Ld, N); Irwin, Harley, & Onishi 29543 (Ld, N); Irwin, Reis dos Santos, Souza, & Fonsêca 21958 (N, Z); Macedo 2780 (N, S), 3019 (N, S); Mello Barreto 9844 [Herb. Jard. Bot. Belo Horiz. 25340] (N); Mendes Magalhães 1120 [Herb. Jard. Bot. Belo Horiz. 39318] (N). State undetermined: G. Gardner 5244 (N).

PAEPALANTHUS FRATERNUS N. E. Br.

Additional bibliography: Moldenke, Phytologia 29: 387--388 (1974) and 30: 115. 1975.

The younger leaves of this plant are silvery-gray, according to

Bogner, but this character seems to wear off as the leaves mature. He encountered the plant at 2400 meters altitude, flowering and fruiting in February.

Additional citations: VENEZUELA: Bolívar: Bogner 986 (Mu), 1005 (Mu).

PAEPALANTHUS GARTIMPENSIS Alv. Silv.

Additional bibliography: Moldenke, Biol. Abstr. 59: 6934; Moldenke, Phytologia 29: 394 & 477. 1974.

PAEPALANTHUS GYROTRICHUS Ruhl.

Additional bibliography: Moldenke, Phytologia 29: 489. 1974.

Hatschbach and his associates found this plant growing near streams and in "dos paredões rochosos, local seco sombrio", flowering and fruiting in October.

Additional citations: BRAZIL: Minas Gerais: Hatschbach & Ferreira 35396 (Ld); Hatschbach & Kozciki 35402 (Z).

PAEPALANTHUS HILAIREI Körn.

Additional bibliography: Moldenke, Phytologia 29: 493—500 (1974), 30: 273. 275. 330, 332, & 334 (1975), and 31: 392. 1975.

Harley and his associates refer to this plant as a subshrub, 60 cm. tall, with white flower-heads and blackish bracts. They encountered it in wet grasslands on lower slopes, at 1550 meters altitude.

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 15438 (K). Minas Gerais: J. E. Pohl s.n. [Macbride photos 18702] (N—photo, Z—photo).

PAEPALANTHUS HILAIREI var. MAXIMILIANI Ruhl.

Additional bibliography: Moldenke, Alph. List Cit. 1: 250. 1946; Moldenke, Phytologia 29: 495 & 497—499 (1974) and 30: 332. 1975.

Recent collectors have found this plant growing in seasonal marshes on light-gray "gleyed" soil set in the middle of cerrado woodlands, at 1200 meters altitude, and describe the flowering-heads as white.

Additional citations: BRAZIL: Distrito Federal: Taxonomy Class Univ. Bras. 67 (W—2757753), 117 (W—2757742). Goiás: Irwin, Grear, Souza, & Reis dos Santos 14549 (W—2758996).

PAEPALANTHUS HISPIDISSIMUS Herzog

Additional bibliography: Moldenke, Phytologia 29: 500—501 (1974) and 30: 325. 1975.

Harley and his associates refer to this plant as an "herb forming thick fleshy rosettes from often branched rootstocks, the flower-heads greyish, borne on horizontal peduncles" and encountered it in waste ground near a river with damp grassland and scattered woodland, at 950 meters altitude, flowering and fruiting in February.

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine,

Brighton, & Pinheiro in Harley 16100 (Ld).

## PAEPALANTHUS HYDRA Ruhl.

Additional bibliography: Moldenke, Phytologia 29: 502 (1974) and 30: 111. 1975; Moldenke, Biol. Abstr. 59: 6934. 1975.

Additional citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28565 (W—2758997).

## PAEPALANTHUS HYMENOLEPIS Alv. Silv.

Additional bibliography: Moldenke, Phytologia 30: 16. 1975.

This plant has been collected in flower and fruit in September and the vernacular name, "sempreviva", has been reported for it.

Additional citations: BRAZIL: Minas Gerais: Windisch & Ghil-lány 213 (Bd—61219, Ja—61219, Ld).

## PAEPALANTHUS IBITIPOCENSIS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahres-ber. 46 (2): 4. 1924; Moldenke, Phytologia 30: 16 & 45. 1975.

## PAEPALANTHUS INCANUS (Bong.) Körn.

Additional bibliography: Moldenke, Phytologia 30: 17—19 & 120. 1975.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 25467 (W—2709304); Irwin, Maxwell, & Wasshausen 20803 (W—2570161A); Irwin, Reis dos Santos, Souza, & Fonsêca 22662 (W—2582558A), 22909 (W—2582552A).

## PAEPALANTHUS INTERMEDIUS Körn.

Additional bibliography: Moldenke, Phytologia 30: 20, 83, & 338. 1975.

Additional citations: BRAZIL: Distrito Federal: Irwin, Souza, & Reis dos Santos 8729 (W—2759007).

## PAEPALANTHUS ITATIAIENSIS Ruhl.

Additional bibliography: Moldenke, Phytologia 30: 21—22. 1975.

Hatschbach and his associates found this plant growing in a somewhat wet campo, at 200 meters altitude, flowering and fruiting in January.

Additional citations: BRAZIL: Rio de Janeiro: Hatschbach, Smith, Pabst, & Pereira 35845 (Ld).

## PAEPALANTHUS KARSTENII Ruhl.

Additional bibliography: Soukup, Biota 2: 302. 1959; Moldenke, Phytologia 30: 15, 24—29, 31, 32, 90, & 125 (1975), 31: 379, 381, 383, & 387 (1975), and 32: 47. 1975.

Ruiz-Terán and his associates describe this species as "Hier-bita cespitosa, que forma cojines subhemisféricos, compactos, has-ta de 25 x 12 cm. Hojas pequeñas, deltado-lineares, 8—12 mm., con largos pelos blancos en bordes y base. Escapos exsertos en 1—2 cm. Capítulos subglobosos a hemisféricos, 3—3.5 x 4—5—(6) mm. Frecuente."

Cleef describes the species as a "hierba, rosetas pequeñas", "hierba pequeño arrossetada, flores blancas", or "planta [or "plantica"] pequeña [or "diminuta"] arrossetada común", and encountered it on "páramo húmedo con Hypericum sp., Chusquea sp., Calamagrostis effusa y Blechnum loxense", "páramo....vertiente húmedo con Breutelia, Chusquea y Calamagrostis effusa", "páramo seco.. vertiente con Espeletia sp., Ericáceas, Aragoa abietina, Campylopus y Cladonia spp.", "vallecito pantanoso con Sphagnum spp., Puya sp., Hypericum spp. y Campylopus", "vertiente pantanoso: matorral de Aragoa abietina con Lepidozia, Sphagnum y musgos pleurocarpos", "subpáramo: vertiente seco con Calamagrostis effusa, Arcytophyllum nitidum y Espeletia argentea", "páramo seco con feailejónal denso de Espeletia grandiflora, asociada con Paepalanthus colombianus, Campylopus y Lepidozia", "subpáramo seco....asociada con Castratella rosea y Pinguicula elongata", "subpáramo....vertiente relat. seco con Oreobolus obtusangulus predominante, asociada con Calamagrostis effusa, Rhynchospora, Castratella rosea, Xyris, Tofieldia y Pinguicula", "vertiente seco con Calamagrostis effusa predominante, asociada con Oreobolus obtusangulus, Rhynchospora paramorum y Espeletia grandiflora", and "páramo poco húmedo con Calamagrostis effusa, Espeletia grandiflora, Rhynchospora y Campylopus", at altitudes of 3080—3755 meters, flowering and fruiting from April to June, August, September, November, and December.

Cleef 3290 is a mixture with var. subsessilis (Moldenke) Moldenke.

Additional citations: COLOMBIA: Boyacá: Cleef 4741 (Ld), 9901 (Ut—316640). Cundinamarca: Cleef 438 (Ut—316635), 2957 (Ut—316647), 3290, in part (Ut—316661), 3752 (Ld), 3808 (Gz), 5321 (Ut—316639), 5382 (Ut—316638), 6108 (Ld), 6365 (Ac). VENEZUELA: Mérida: Jahn 1034 (N—photo, V, W—1186663, Z—photo). Táchira: Ruiz-Terán, López-Figueiras, Wurdack, Wurdack, & Tillett 8117 (Ld).

#### PAEPALANTHUS KARSTENII var. COREI Moldenke

Additional bibliography: Moldenke, Phytologia 30: 26—29 & 90 (1975) and 31: 381, 383, & 387. 1975.

Cleef describes this plant as a "hierba [or "planta"] pequeña arrossetada, flores blancas" or "planta arrossetada almohadillada común" and encountered it on "vertiente pedregoso seco con Espeletia boyacensis, Calamagrostis y Acaena cylindrostachya", "vegetación seca con Lorenzochloa erectifolia, asociada con Paspalum bonplandianum", "vegetación pantanosa con Espeletia sp., Blechnum loxense, Breutelia sp. y Sphagnum spp.", "vertiente húmedo con maticas de Chusquea, asociada con Oreobolus obtusangulus, Calamagrostis effusa, Rhynchospora y Lepidozia sp.", "pajonal seco con Calamagrostis effusa, asociada con Arcytophyllum muticum, Iritro-

phium peruvianum y Vaccinium floribundum var. ramosissimum", "páramo seco abrigado con rastrojo de Arcytophyllum muticum, Ericáceas y Aragoa abietina, asociado con Espeletia sp. y Campylopus sp.", "lajas de arenisca: suelo poco profundo, vegetación con Calamagrostis effusa, Diplostegium phyllicoides, Chusquea, Lyco-podium, Campylopus y Racocarpus humboldtii", "páramo seco con Calamagrostis effusa, Chusquea y almohadillas de Paepalanthus sp.", "pajonal del páramo", "vertiente con Espeletia sp., Ericáceas, Aragoa abietina, Campylopus y Gladonia sp.", and "turbera..... Sphagnum predominante, asociado con Ericáceas prostradas, Aragoa abietina, Puya sp. y Riccardia", at altitudes of 3315-4000 meters, flowering and fruiting from January to March, May, June, and November.

Additional citations: COLOMBIA: Boyacá: Cleef 2159 (Ut-316649), 2186 (Ut-316648), 4459 (Ac), 4654 (Ld). Cauca: Cleef & Fernandez P. 530 (Ac). Cundinamarca: Cleef 1634 (Ut-316650), 6231 (Ut-316645), 6341 (Ld), 6366 (Ut-316644); Cleef & Jaramillo M. 4075 (Ut-316658), 4162 (Ld).

PAEPALANTHUS KARSTENII var. MINIMUS Moldenke

Additional bibliography: Moldenke, Phytologia 30: 15 & 29 (1975) and 31: 381. 1975.

Cleef describes this plant as "planta arrosetada, pequeña, flores blancas, común", at 3250 meters altitude, flowering and fruiting in April on a "subpáramo pedregoso".

Additional citations: COLOMBIA: Boyacá: Cleef 9357 (Ut-316641).

PAEPALANTHUS KARSTENII var. SUBSESSILIS (Moldenke) Moldenke, Phytologia 32: 47. 1975.

Synonymy: Paepalanthus subsessilis Moldenke, Phytologia 2: 232-233. 1947.

Bibliography: Moldenke, Phytologia 2: 232-233 & 381. 1947; Moldenke, Alph. List Cit. 3: 974. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 64 & 211. 1949; Moldenke, Phytologia 4: 205. 1953; E. J. Salisb., Ind. Kew. Suppl. 11: 176. 1953; J. A. Steyerl., Fieldiana Bot. 28: 1158. 1957; Moldenke, Résumé 72 & 490. 1959; Moldenke, Résumé Suppl. 3: 12 (1962) and 7: 4. 1963; J. A. Steyerl., Act. Bot. Venez. 1: 223. 1966; Moldenke, Fifth Summ. 1: 118 & 126 (1971) and 2: 958. 1971; Moldenke, Phytologia 31: 381 (1975) and 32: 47. 1975.

Recent collectors describe this plant as a densely tufted herb to 2 cm. tall or prostrate mat, the inflorescence white, the actual flowers very pale brownish-white. They have found it growing on savannas, páramos or high páramos, on lakesides or near alpine lakes, at altitudes of 3165-4300 meters, in flower in January, February, April, June, July, and September, and in fruit in January, February, June, and September. Ruiz-Terán and his associates describe it as a "Hierba mínima, diminuta, rizomática,

cespitosa, 2—5 cm., que forma cojines cespitosos, subhemisféricos, compactos, voluminosos, de contorno más o menos circular y de 8—20 cm. de diámetro" or "agrupada en almohadillas compactas, subconvexas, semihemisféricos. Hojas pequeñas, deltado-lineares, rosuladas, denticuladas, ciliadas, con vaina blanca y limbo verde subintenso, deltado-lanceolado, agudo [or "vainas blanquecinas, pilosas, limbo verde intenso, agudo, laxipiloso"]. Escapos cortos, inclusos, más cortos que las hojas, 1-céfalos. Capítulos floríferos pequeños, escapíferos, a nivel de las hojas, inclusos o sosaliendo muy poco, compactos, 4--5 mm. de diámetro, solitarios, apenas, subglobosos a hemisféricos, blanquecinos, hacia el centro de la roseta" [or " $\pm$  4 x 6 mm."]. "Flores muy pequeños, blanquecinas" [or "mónimas, blancas"]. "Pelos perianticos blancos." They speak of the variety as "Abundante" or "Frecuente".

Cleef describes the plant as "planta arrosada, flor blanca" and encountered it in "páramo propiamente dicho, vertiente.... sobre una llanura pequeño, vegetación seca con Calamagrostis effusa, Carex sp. y Campylopus sp.", "páramo: pantano con bosque enano de Diplostegium revolutum con Sphagnum spp. y Riccardia sp.", "páramo poco húmedo con Calamagrostis effusa, Espeletia grandiflora, Rhynchospora y Campylopus", and "vertiente pantanoso con Chusquea, Espeletia summapacis, Alchemilla cf. nivalis y Festuca dolichophylla, con muchas especies".

Cleef 3290 is a mixture with typical P. karstenii Ruhl.

Material of this variety has been misidentified and distributed in some herbaria as P. karstenii Ruhl. or P. pilosus (H.B.K.) Kunth.

Additional citations: COLOMBIA: Boyacá: Cuatrecasas 1501 (W-1773011); Grubb, Curry, & Fernandez-Perez 177 (K, W-2322280). Cundinamarca: Cleef 1590 (Ld), 1673 (Ut-316651), 3290, in part (Ut-316661); M. L. Grant 9424 [Herb. U. S. Nat. Arb. 216623] (W-2166089), Meta: Cleef 1174 (Ut-316634). VENEZUELA: Lara: J. A. Steyermark 55495 (S-isotype). Mérida: Lieth s.n. [Sept. 11, 1961] (Z); Ruiz-Terán 6274 (Mi), 7158 (Ld), 7948a (Ld); Ruiz-Terán & López-Figueiras 254 (Ac), 1106 (Tu); Ruiz-Terán & López-Palacios 6694 (Mi); Sergent 51 (Ve, W-1778033).

#### PAEPALANTHUS KLOTZSCHIANUS Körn.

Additional synonymy: Paepalanthus klotzschianus Mart. apud J. Hutchinson, Fam. Flow. Pl., ed. 3, [711]. 1973.

Additional & emended bibliography: J. Hutchinson, Fam. Flow. Pl., ed. 1, 2: 66 & 67, fig. 21 (1934) and ed. 2, 2: [575], fig. 364. 1959; Moldenke, Phytologia 30: 30--31 (1975) and 31: 404. 1975.

Additional & emended illustrations: J. Hutchinson, Fam. Flow. Pl., ed. 1, 2: 66, fig. 21 (1934) and ed. 2, 2: [575], fig. 364. 1959.

PAEPALANTHUS KUPPERI Suesseng.

Additional bibliography: Moldenke, Phytologia 30: 26 & 31--32 (1975), 31: 379 (1975), and 32: 500. 1976.

The Taylors encountered this plant on a "false páramo", flowering in August. Other collectors have encountered it in dense mats in bogs in the páramo region and forming broad dense cushions, "common" on páramos at altitudes of 2700--3100 meters, flowering and fruiting from December to February. The Standley & Valerio 43637 & 43830 and Williams, Jiménez M., & Williams 24472, cited below, were previously erroneously distributed and cited by me as Eriocaulon microcephalum H.B.K., which they greatly resemble in habit and appearance.

Additional citations: COSTA RICA: Cartago: Williams, Jiménez M., & Williams 24472 (W--2436800). San José: Standley & Valerio 43637 (W--599294, W--1253340), 43830 (W--716227, W--1253393); Taylor & Taylor 11738 (W--2733969).

PAEPALANTHUS LAMARCKII Kunth

Additional bibliography: H. Lecomte, Bull. Soc. Bot. France 55: 595. 1909; León & Alain, Fl. Cuba, imp. 2, 1: 283 & 428. 1974; Moldenke, Phytologia 30: 32--38, 47, 74, 78, 81, 107, 125, 317, & 318. 1975; Molina R., Ceiba 19: 24. 1975.

The Lecomte (1909) reference in the bibliography of this species is sometimes cited as "1908", but even though the paper involved here was read at the November 13, 1908, session of the Society, pages 589--756 of Volume 55 of its Bulletin were not issued until 1909. The Malme (1901) reference is sometimes erroneously cited as "1903".

Molina R. (1975) records this species from Honduras. In Surinam Lindeman encountered it on old sand ridges in rather moist soil and near a bog, flowering and fruiting in April.

Additional citations: VENEZUELA: Bolívar: Vareschi s.n. [Canaima, Januar 1974] (Mu). SURINAM: Lindeman 5741 (N). BRAZIL: Pernambuco: Tavares 634 (W--2692384).

PAEPALANTHUS LANCEOLATUS Körn.

Additional synonymy: Paepalanthus lanceolatus var. Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 314. 1871.

Additional bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 314. 1871; Moldenke, Phytologia 30: 40, 78, & 111 (1975) and 31: 404. 1975.

Körnische (1871) says of his unnamed variety: "Folia angustiora, quam l. c. [Mart., Fl. Bras.] a me descripta, 1 1/2 -- 3 lin. lata; pedunculi plus minus pilosi demum calvi" and bases it on Warming s.n. from "In cacumine montis Serra da Piedade, Jan., Febr. fl." He apparently suffered some misgivings on his treatment of this and related species in his 1863 work, because he comments here (1871): "Species 117--125 in Mart. fl. Brasil. a me enumeratae in loco natali ulterius sunt inquirendae, utrum re vera species exhibeant, an varietates." The species here referred to

are P. corymbosus (Bong.) Kunth, P. lanceolatus Körn., P. pauciflorus Körn., P. rigidulus Mart., P. spixiamus Mart., P. trichopetalus Körn., P. tuberosus (Bong.) Kunth, P. vellozioides Körn., and P. villosulus Mart. Ruhland (1903) maintains all of these as valid species, but they are certainly all most similar in habit and general appearance and Körnicke's suggestion that some, at least, be reduced to varietal rank is one well worth following up.

Recent collectors have encountered P. lanceolatus on "campo rochoso encosta de morro", flowering in October.

Additional citations: BRAZIL: Minas Gerais: Hatschbach & Koczicki 35332 (Ac), 35346 (Id).

#### PAEPALANTHUS LEIOTHRICOIDES Alv. Silv.

Additional bibliography: Moldenke, *Phytologia* 30: 43. 1975.

Additional citations: BRAZIL: Minas Gerais: Windisch & Ghilány 129 [Herb. Brad. 61238] (Gz).

#### PAEPALANTHUS LEPIDUS Alv. Silv.

Additional bibliography: Fedde & Schust. in *Just, Bot. Jahresber.* 46 (2): 4. 1924; Moldenke, *Phytologia* 30: 44. 1975.

#### PAEPALANTHUS LINDENII Ruhl.

Additional bibliography: Moldenke, *Phytologia* 30: 47-48. 1975.

Cleef describes this plant as "caulirósula 1 m., flores blancas; planta arrossetada común" and encountered it on a "subpáramo: pedregal seco con gramíneas, Espeletia pleiochasia var. socotana, Hypericum y Paepalanthus", at 2970 meters altitude, flowering and fruiting in May.

Additional citations: COLOMBIA: Boyacá: Cleef 9872 (Ut-316665, Ut-316666).

#### PAEPALANTHUS LODICULOIDES Moldenke

Additional bibliography: Moldenke, *Phytologia* 30: 49-50 (1975) and 32: 47. 1975.

Cleef describes this plant as a "planta [or "hierba"] pequeña arrossetada en almohadillas" or "plantica arrossetada almohadillada, flores blancas", and encountered it on "vertiente húmedo con Chusquea, Espeletia congestiflora, Calamagrostis effusa, Hypericum y Campylopus sp., suelo poco profundo", "páramo prop. dicho abierto.. vegetación seca con Calamagrostis effusa, Rhynchospora paramorum y Xyris acutifolia con influencia reciente de quema", "páramo seco con Calamagrostis effusa y Oritrophium peruvianum", "páramo propiamente dicho: afloramiento de arenisca con Oreobolus obtusangulus, Racocarpus humboldtii, Campylopus sp. y Lysipomia muscoides ssp. simulans", "en almohadillas cerce de pozos en páramo prop. dicho", and "vegetación poco húmeda con Muehlenbergia fastigiata, Carex cf. amicta y Oritrophium peruvianum, asociadas con matas de Chusquea", at altitudes of 3490-3900 meters, flowering and fruiting in February, March, June, and September.



Additional citations: COLOMBIA: Boyacá: Cleef 2160 (Ld), 4364 (Ld), 4418 (Ac), 4639 (Ut—316654). Cundinamarca: Cleef 5439 (Ac). Meta: Cleef 1499 (Ut—316655), 1502 (Ut—316664).

PAEPALANTHUS LODICULOIDES var. FLOCCOSUS Moldenke, Phytologia 32: 47. 1975.

Bibliography: Moldenke, Phytologia 32: 47. 1975.

Cleef describes this remarkable plant as "plantas pequeñas arrosetadas almohadilladas" and found it growing on a "superpáramo: hondonado algo húmeda de una morrena con Oritrophium peruvianum ssp. predominante", "morrena seca pedregosa con Calamagrostis effusa y Gymnomitriaceae predominantes, asociadas con Luzula, Espelletia colombiana y musgos", and "pantano con cojines de Plantago rigida, almohadillas, asociado con Breutelia", at altitudes of 3680—4340 m., flowering and fruiting in February, September, and December.

Citations: COLOMBIA: Boyacá: Cleef 8569 (Z); Cleef, Cuatrecasas, & Jaramillo M. 9214 (Hn--type); Cleef & Florschütz 5550 (Ld). Cundinamarca: Cleef 139 (Ac).

PAEPALANTHUS LUNDII Körn.

Additional bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 313. 1871; Moldenke, Phytologia 30: 53. 1975.

Körnicke (1871) cites Lund s.n. from "In campis ad Franca, Julio" and says of it "Folia speciminis cujusdam 4 pollicaria".

PAEPALANTHUS MACROCAULON Alv. Silv.

Additional bibliography: Anon., Ind. Bot. Guay. Highl. 16. 1972; Moldenke, Mem. N. Y. Bot. Gard. 23: 852. 1972; Moldenke, Phytologia 30: 55—56 & 335. 1975.

PAEPALANTHUS MACROCAULON var. VENAMENSIS Moldenke

Additional bibliography: Anon., Ind. Bot. Guay. Highl. 16. 1972; Moldenke, Phytologia 30: 56. 1975.

PAEPALANTHUS MACROPODUS Ruhl.

Additional bibliography: Moldenke, Phytologia 30: 52 & 59. 1975.

Emygdio and his associates encountered this plant at 1750 m. altitude, flowering and fruiting in July, and describe the flowerheads as white.

Additional citations: BRAZIL: Minas Gerais: Emygdio, Duarte, Becker, & Silva Santos 3521 (N).

PAEPALANTHUS MACROTRICHUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahrbuch. 46 (2): 4. 1924; Moldenke, Phytologia 30: 61. 1975.



Fig. 2. Paepalanthus lodiculoides var. floccosus.

A typical colony at the boundary of the superpáramo and the páramo proper, at about 4350 meters altitude, on the Páramo Concavo in the Sierra Nevada del Cocuy, Boyacá, Colombia. Photograph taken on February 27, 1973, and published here by courtesy of Dr. Antoine M. Cleef, from his color slide 2307 and representing the locality for his herbarium collection no. 8569.

PAEPALANTHUS MAGALHAESII Alv. Silv.

Emended synonymy: Paepalanthus magalhaesii Alv. Silv. apud Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 30: 61--62. 1975.

Additional citations: BRAZIL: Distrito Federal: Irwin, Souza, & Reis dos Santos 8700 (W--2759008).

PAEPALANTHUS MANICATUS V. A. Poul. s.

Additional bibliography: Moldenke, Phytologia 30: 35, 62, 73--76, 81, & 113. 1975.

Malmé (1901), whose work is sometimes erroneously cited as "1903", comments about this species: "Affinis P. Lamarckii Kunth. et P. myocephalo Mart., abs quibus jam foliis manifeste trinervi-bus nec non vaginae indole recedit. A P. caespititio Mart. af-finibusque bracteis involucrantibus obtusissimis, foliis glabris, indole caulis etc. differt."

PAEPALANTHUS MELANOLEPIS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 30: 78. 1975.

PAEPALANTHUS MEXICAE Moldenke

Additional bibliography: Moldenke, Phytologia 30: 80--81. 1975.

Additional citations: BRAZIL: Minas Gerais: M. A. Chase 10342 (Mi).

PAEPALANTHUS MICHAELII Alv. Silv.

Additional bibliography: Moldenke, Phytologia 30: 81. 1975.

Recent collectors have encountered this plant on lightly pas-tured grassy hillsides with some shrubs, at 1650 meters altitude, flowering and fruiting in December.

Additional citations: BRAZIL: São Paulo: Tryon & Tryon 6909 (N).

PAEPALANTHUS MICROCAULON Ruhl.

Additional bibliography: Moldenke, Phytologia 30: 74, 81--82, & 113. 1975.

Recent collectors have found this plant in flower and fruit in February.

Additional citations: BRAZIL: Minas Gerais: Hatschbach, Ander-son, Barneby, & Gates 36567 (Id).

PAEPALANTHUS MUSCOSUS Körn.

Additional bibliography: Moldenke, Phytologia 30: 89--90 (1975) and 31: 383. 1975.

The Ruiz-Terán & López-Palacios 11217, distributed as P. mus-cosus and so cited by me in a previous installment of these notes, proves actually to be Syngonanthus savannorum var. glabrescens Moldenke. Paepalanthus muscosus is, therefore, not known from Ven-ezuela.

## PAEPALANTHUS MYOCEPHALUS (Mart.) Körn.

Additional bibliography: Moldenke, *Phytologia* 30: 90—93. 1975.  
The Malme (1901) reference in the bibliography of this species is sometimes erroneously cited as "1903".

## PAEPALANTHUS NEGLECTUS Körn.

Additional bibliography: Körn. in Warming, *Vidensk. Meddøl. Naturh. Foren. Kjöbenh.* 23: 312. 1871; Moldenke, *Phytologia* 30: 94—95. 1975.

Körnicker (1871) says that his *P. macaheensis* differs from this species in the "pilosite foliorum nec non bracteis".

The Malme (1901) reference in the bibliography of *P. neglectus* is sometimes erroneously cited as "1903".

## PAEPALANTHUS NIGRESCENS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 5. 1924; Moldenke, *Phytologia* 30: 96. 1975.

## PAEPALANTHUS NIGRESCENS var. PILOSUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, *Bot. Jahresber.* 46 (2): 5. 1924; Moldenke, *Phytologia* 30: 96. 1975.

## PAEPALANTHUS NIGRICANS Alv. Silv.

Additional bibliography: Moldenke, *Phytologia* 30: 96—97 (1975) and 31: 385. 1975.

Harley and his associates refer to this plant as a slender herb with dull-green leaves and whitish flower-heads. They encountered it in an area of carrasco scrub vegetation among rocks, with occasional wet flushes and some areas partly burned-over, at 1500 m. altitude, flowering and fruiting in January.

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 15482 (Z).

## PAEPALANTHUS OBTUSIFOLIUS (Steud.) Körn.

Additional synonymy: Paepalanthus obtusifolia Körn. ex Moldenke, *Phytologia* 31: 404, in syn. 1975.

Additional bibliography: Moldenke, *Phytologia* 30: 99—100 & 317 (1975) and 31: 404. 1975.

The statement made previously by me to the effect that Blanchet 3584 is the type collection of this species is incorrect, even though Macbride photographed a sheet of this collection as his type photograph number 22292. The species is actually based on Herb. Moricand s.n.; whether this may, in fact, also be a specimen of Blanchet 3584 is not clear, but I have no evidence that it is. Ruhland (1903) apparently thought that it is not, since he regarded the Blanchet collection as representing *P. tortilis* (Bong.) Mart. From what I have seen of Blanchet's collection, I feel that it does, in fact, actually represent *P. obtusifolius*.

Harley and his associates describe *P. obtusifolius* as a "low herb with pale-green rosettes of leaves" and whitish-gray flower-

heads, and have found it growing in an area of woodland along a small stream, normally damp grassland (now dry), and dry cerrado/carrasco woodland on slopes of surrounding quartzite hills, at 1000 meters altitude, flowering and fruiting in January.

Additional citations: BRAZIL: Bahia: Blanchet 3584 [Macbride photos 22292] (Br, E, N, N--photo, W--photo); Harley, Renvoize, Brighton, & Pinheiro in Harley 15275 (Z).

PAEPALANTHUS OVATUS Körn.

Emended synonymy: Paepalanthus macaheensis Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 311--312. 1871.

Additional & emended bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 311--312. 1871; Moldenke, Phytologia 30: 104--105. 1975.

Hatschbach encountered this species in shaded sandy soil. Körnicke (1871) cites for P. ovatus an additional collection, Glaziou 4281. In his description of P. macaheensis he says that it "Differt a P. ovato Kcke. capitulis sordide flavido- (nec albo-)villosis, bracteis involucrantibus interioribus latioribus, non acuminatis; a P. neglecto Kcke. et P. Schuchiano Kcke. pilositate foliorum nec non bracteis; a P. plantagineo Kcke. proximo capitulis sordide flavido (nec albo-)villosis et bracteis flores stipantibus multi angustioribus. In collectionibus cel. Glaziou 'n. 4284, Hato macahe', pr. Rio de Janeiro. Ann. Suppentunt specimen in collectionibus Glaziou sub. n. 4282 verisimile formam ejusdem speciei exhibentia solo aridiori enata caule hypogaeo brevioris foliis angustioribus bracteis involucrantibus acutioribus interioribus minus latis."

Additional citations: BRAZIL: Minas Gerais: Hatschbach 36547 (Ld). Rio de Janeiro: Lützelburg 6584 (Mu).

PAEPALANTHUS OXYPHYLLUS Körn.

Additional bibliography: Moldenke, Phytologia 30: 105--106 (1975) and 31: 385. 1975.

Hatschbach and his associates found this plant growing in brejo (sedge meadow), at 1300--1500 meters altitude, flowering in February.

Additional citations: BRAZIL: Goiás: Hatschbach, Anderson, Barney, & Gates 36373 (Z).

PAEPALANTHUS PALLIDUS Alv. Silv.

Additional bibliography: Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 4. 1924; Moldenke, Phytologia 30: 107--108. 1975.

PAEPALANTHUS PARAMENSIS Moldenke

Additional bibliography: Moldenke, Phytologia 30: 108--109 (1975) and 31: 381. 1975.

Cleef describes this plant as a "planta [or "hierba"] arrosetada pequena, capítulos blancos, flores blancas" and found it growing in a "subpáramo", "rastrojo seco con Diplostegium colombianum predominante, asociada con Arcytophyllum caracasana, Cortaderia, Oreobo-

lus obtusangulus, Hypericum y Racocarpus humboldtii", and "subpáramo: vertiente pendiente seco con Calamagrostis effusa, Espeletia corymbosa, Rhynchospora y Arcytophyllum nitidum, asociadas con matorral de Befaria", at altitudes of 3100--3725 meters, flowering and fruiting in May, June, and December.

Additional citations: COLOMBIA: Boyacá: Cleef 4742 (Ut--316636), 7205 (Ut--316643). Cundinamarca: Cleef 3335 (Ac), 3650 (Ld).

PAEPALANTHUS PAUCIFLORUS Körn.

Additional bibliography: Moldenke, *Phytologia* 30: 110--111. 1975.

Emygdio and his associates have encountered this plant at 1025 meters altitude, flowering in July.

Additional citations: BRAZIL: Minas Gerais: Emygdio, Duarte, Becker, & Silva Santos 3728 (N).

PAEPALANTHUS PAUPERRIMUS Herzog

Additional bibliography: Moldenke, *Phytologia* 30: 113--114 & 118. 1975.

The isotype of this species cited by me previously from my personal herbarium, was so cited in error.

PAEPALANTHUS PETRAEUS Körn.

Additional bibliography: Moldenke, *Phytologia* 30: 119. 1975.

Additional citations: COLOMBIA: Cundinamarca: Duque-Jaramillo 2814 (N).

PAEPALANTHUS PHAEOCEPHALUS Ruhl.

Additional bibliography: Moldenke, *Phytologia* 30: 120--121. 1975.

Hatschbach and his associates found this plant growing in a wet sandy campo at 1300--1500 meters altitude, flowering and fruiting in May.

Additional citations: BRAZIL: Goiás: W. R. Anderson 6610 (N), 7451 (N); Hatschbach 36853 (Ld); Hatschbach, Anderson, Barneby, & Gates 36363 (Ld); Irwin, Grear, Souza, & Reis dos Santos 12596 (W--2759009).

PAEPALANTHUS PHAEOCEPHALUS var. FOLIOSUS Moldenke

Additional bibliography: Moldenke, *Phytologia* 30: 120--121. 1975.

Additional citations: BRAZIL: Distrito Federal: Irwin, Souza, & Reis dos Santos 11368 (W--2759010--isotype).

PAEPALANTHUS PILOSUS (H.B.K.) Kunth

Additional bibliography: Moldenke, *Phytologia* 30: 251 & 269. 1975.

Cleef describes this plant as a "planta [or "hierba"] pequeña arrositada, flores blancas" and encountered it on a "páramo: morrena seca (relat.) pedregoso con Hypericum sp., Chusquea, Oreobolus obtusangulus, Paepalanthus spp., Cortaderia y Racocarpus hum-

boldtii" and "turbera.....Sphagnum predominante, asociado con Ericáceas prostradas, Aragoa abietina, Puya sp. y Riccardia", at altitudes of 3290--3660 m., flowering and fruiting in April and November.

Additional citations: COLOMBIA: Boyacá: Cleef 9336 (Ld). Cundinamarca: Cleef 6230 (Ut--316646).

PAEPALANTHUS PLANIFOLIUS (Bong.) Körn.

Additional & emended bibliography: Soukup, Biota 2: 302. 1959; Moldenke, Biol. Abstr. 59: 6926. 1975; Moldenke, Phytologia 30: 252--262 & 336 (1975) and 31: 385 & 404. 1975.

Malme (1901), whose work is sometimes erroneously cited as "1903", cites Mosén 766 from "Loco uliginoso, in margine silvae", Minas Gerais, and comments that "Caulis ad 0,5 m longus, diam. ad 0,05 m., adscendens, decumbens v. erectus. Folia a basi vaginante et pallida subplana, glaucoviridia. Pedunculi compressi, striati. Inflorescentia obliqua, semiglobosa."

Additional citations: BRAZIL: Distrito Federal: Irwin, Souza, & Reis dos Santos 7902 (W--2759011).

PAEPALANTHUS PLANIFOLIUS var. CONSANGUINEUS (Körn.) Ruhl.

Additional synonymy: Paepalanthus consanguineus Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 314, sphalm. 1871.

Paepalanthus consanguineus var. Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 314. 1871.

Additional bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 314. 1871; Moldenke, Phytologia 30: 256 & 258--260 (1975) and 31: 385 & 404. 1975.

Körnische's (1871) unnamed variety is described by him as "Differt a speciminibus l. c. [in Mart., Fl. Bras. 1863] a me descriptis bracteis involucrentibus glabris, subacuminatis. -- Haec etiam species et affines l. c. a me sub num. 133--141 enumeratae forsan tanquam varietates conjungendae sunt" and is based on Glaziou 3618 from "e vicinia Rio de Janeiro", Brazil.

PAEPALANTHUS PLANIFOLIUS var. VILLOSUS Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 59: 6926. 1975; Moldenke, Phytologia 30: 262 (1975) and 31: 385. 1975.

PAEPALANTHUS PLANTAGINEUS (Bong.) Körn.

Additional bibliography: Körn. in Warming, Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 312 & 313. 1871; Moldenke, Phytologia 30: 262--264 (1975) and 31: 404. 1975.

Körnische (1871) cites for his "var. ♂" of this species Glaziou 3620 from "F. do Cagado in vicinia urbis Rio de Janeiro", collected in June. He notes that his P. macaheensis [= P. ovatus Körn.] differs from P. plantagineus in "proximo capitulis sordide flavido-(nec albo-)villosis et bracteis floris stipantibus multo angustioribus".

## PAEPALANTHUS PLUMIPES Alv. Silv.

Additional bibliography: Moldenke, *Phytologia* 30: 266—267, 274, & 275. 1975.

Emygdio and his associates have encountered this plant growing in barren soil at 1550 meters altitude, flowering and fruiting in July, and describe the flowers as "branco-sujo".

Additional citations: BRAZIL: Minas Gerais: Emygdio, Duarte, Becker, & Silva Santos 3373 (N).

## PAEPALANTHUS PLUMOSUS (Bong.) Körn.

Additional & emended bibliography: Hook. f. & Benth. in Hook., *Niger Fl.* 548. 1849; Moldenke, *Phytologia* 4: 202 & 205 (1953), 30: 267—271 (1975), and 31: 404. 1975.

## PAEPALANTHUS POLYANTHUS (Bong.) Kunth

Additional bibliography: Körn. in Warming, *Vidensk. Meddel. Naturh. Foren. Kjöbenh.* 23: 310. 1871; Moldenke, *Phytologia* 30: 266, 267, 271—278, & 332. 1975.

Hatschbach and his associates found this plant growing in sandy soil "junta a afloramentos". Körnicke (1871) cites an unnumbered Lund collection from "In campis arenosis Araraquara, m. Majo" and says of it "Specimina multo minora (12—19 pollicaria), quam ea in Mart. flor. Brasil. a me descripta. Praeterea ramis paucis erecto-patentibus differunt", but he still places it in what he calls his "var. ♂". Malme (1901), whose work is sometimes erroneously cited as "1903", cites Löfgren 1127 from São Paulo and Regnell 1271 from Minas Gerais, collected in "Loco turfoso" and "In palude" in March and December respectively

Additional citations: BRAZIL: Minas Gerais: Hatschbach, Anderson, Barneby, & Gates 36426 (Ld); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27952 (W—2759012), 28345 (W—2759013). Paraná: Hatschbach 35574 (Ld).

## PAEPALANTHUS POLYANTHUS f. VILLOSUS (Beauverd) Moldenke &amp; Smith

Additional bibliography: Moldenke, *Phytologia* 30: 275, 277—278, & 334. 1975.

Additional citations: BRAZIL: Minas Gerais: Anderson, Stieber, & Kirkbride 35370 (W—2709307).

## PAEPALANTHUS POLYTRICHOIDES Kunth

Additional & emended bibliography: Soukup, *Biota* 2: 302. 1959; Moldenke, *Phytologia* 30: 317—320. 1975.

## PAEPALANTHUS POLYTRICHOIDES var. DENSUS Moldenke

Additional bibliography: Moldenke, *Phytologia* 30: 319. 1975.

Cleef describes this plant as a "hierba [or "plantica"] arroseada pequena almohadillada con flores blancas" and encountered it on a "páramo húmedo con Calamagrostis effusa, Espeletia y briófitos", "páramo húmedo, crece en macollas de gramíneas", "páramo abierto cerca de la laguna", and "páramo húmedo con Chusquea y muchísimas especies de criptógamas", at altitudes of 3650—3700 m.,



flowering and fruiting in January, August, and November.

Additional citations: COLOMBIA: Cundinamarca: Cleef 3577 (Ac), 5365 (Ld); Cleef & Jaramillo M. 50 (Ld); Florschütz 4512 (Ut—316662).

PAEPALANTHUS PULVINATUS N. E. Br.

Additional & emended bibliography: H. Lecomte, Bull. Soc. Bot. France 55: 595. 1909; Moldenke, Phytologia 30: 327—328. 1975.

The Lecomte (1909) reference to this species is sometimes erroneously cited as "1908", but even though the paper involved was read to the Society at its November 13, 1908, meeting, pages 589—756 of Volume 55 of its Bulletin, in which it was published, were not actually issued until 1909.

PAEPALANTHUS PUNGENS Griseb.

Additional bibliography: León & Alain, Fl. Cuba, imp. 2, 1: 283 & 428. 1974; Moldenke, Phytologia 30: 328 (1975) and 32: 505. 1976.

PAEPALANTHUS PUNGENS var. BREVIFOLIUS Moldenke

Additional bibliography: Moldenke, Phytologia 30: 328 (1975) and 32: 505. 1976.

Marie-Victorin encountered this plant growing in dry white siliceous sand, flowering and fruiting in March, but erroneously distributed it as Eriocaulon pseudocompressum Ruhl.

Additional citations: CUBA: Pinar del Río: Marie-Victorin 58316 (W—1955390).

PAEPALANTHUS RAMOSUS (Wikstr.) Kunth

Additional bibliography: Schnitzl., Iconogr. 1: pl. 46, fig. 4 & 7. 1845; Moldenke, Phytologia 30: 329—334 (1975) and 31: 392, 397, 403, & 404. 1975.

Emended illustrations: Schnitzl., Iconogr. 1: pl. 46, fig. 4 & 7. 1845.

Harley and his associates encountered this plant in an area of high evergreen restinga forest, in low restinga, and in damp open areas on white sand at sealevel and describes it as an "erect herb to 30 cm., shoots rosette-like at first with mid-green leaves, monocarpic, the flower-heads white". It was flowering in March. Belém & Pinheiro refer to it as 40 cm. tall, the inflorescences "arroxeadas, flôres brancas" and found it in anthesis in July. Their two collections, cited below, were previously erroneously cited by me as P. coutoënsis Moldenke, a closely similar species.

Additional citations: BRAZIL: Bahia: Belém & Pinheiro 2113 (N), 2485 (Ld, N); Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 17386 (Ld).

PAEPALANTHUS REFRACTIFOLIUS Alv. Silv.

Additional bibliography: Moldenke, Phytologia 30: 335 (1975) and 31: 385. 1975.

Additional citations: BRAZIL: Bahia: Harley, Renvoize, Erskine,

Brighton, & Pinheiro in Harley 15473 (Z).

**PAEPALANTHUS REPENS (Lam.) Körn.**

Additional synonymy: Eriocaulon quinquangulare Bojer, Hort. Maurit. 361. 1837 [not E. quinquangulare L., 1753].

Additional bibliography: Bojer, Hort. Maurit. 361. 1837; Moldenke, Phytologia 30: 337-339 (1975), 31: 380, 389, 404, & 405 (1975), and 32: 506. 1976.

Recent collectors have found this plant growing in grassy places and on mountaintops. The Howards describe it as "weak plants" and encountered it in very wet debris at the base of dripping cliffs. Ekman refers to it as "common" and as "not rare in the mountains". It has been found at altitudes of 1110-3125 meters, flowering and fruiting in March and from August to October (in addition to the months previously reported by me).

Bojer (1837) records this plant from Mauritius: "2 REPENS. Lamk. Spreng. Syst. ibid. [p. 775]. Pat. Ile Maurice. Croit et fleurit comme l'espèce précédente [what he calls Eriocaulon quinquangulare L. from "dans les endroits découverts et humides autour du Grand-Bassin"]." The identity of his plant can be determined only on examination of his collections. Five species of Eriocaulon are known from Mauritius besides these two obviously misidentified ones.

Additional citations: HISPANIOLA: Dominican Republic: Ekman H.13561 (W-1711882, W-2517881), H.13667 (W-2517890); Fuertes 1748 (W-759365); Gastony, Jones, & Norris 288 (W-2657473); Howard & Howard 9118 (W-2110935); J. de J. Jiménez 2188 (W-1957845), 3414 (W-2225907); Marcano s.n. [J. de J. Jiménez 4854] (W-2532334); Türckheim 3422 (W-695710). Haiti: Ekman H.1385 (W-1304932), H.1459 (W-1411795), H.10660 (W-1414088).

**PAEPALANTHUS RETUSUS C. Wright**

Additional bibliography: León & Alain, Fl. Cuba, imp. 2, 1: 283 & 428. 1974; Moldenke, Phytologia 30: 339-340 (1975) and 31: 404. 1975.

**PAEPALANTHUS RHIZOCEPHALUS Alv. Silv.**

Additional bibliography: Moldenke, Phytologia 30: 340. 1975.

Additional citations: BRAZIL: Goiás: W. R. Anderson 8188 (N).

**PAEPALANTHUS RIGIDULUS Mart.**

Additional & emended bibliography: Schnitzl., Iconogr. 1: pl. 46, fig. 8-12. 1845; Moldenke, Phytologia 30: 343. 1975.

Emended illustrations: Schnitzl., Iconogr. 1: pl. 46, fig. 8-12 (in color). 1845.

Martius' original description (1835) ends with the statement "bracteis castaneis". The original publication is sometimes cited as "Mart., Erioc. Selbst. Pflanzenfam." and dates "1833", but this is merely the title of the paper and the date of its submission as a manuscript to the Academy. According to Dr. J. H. Barnhart it was not actually published until 1835. [to be continued]